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Flagin et al.

(10) **Patent No.: US 11,986,090 B2**
(45) **Date of Patent: May 21, 2024**

(54) **TELESCOPING SLIDE SYSTEM WITH A TOOLLESS RELEASE FEATURE**

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(72) Inventors: **Don Flagin**, Greenfield, IN (US); **Elizabeth Kokinos**, Fishers, IN (US)

(73) Assignee: **General Devices Co., INC.**, Indianapolis, IN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/992,886**

(22) Filed: **Nov. 22, 2022**

(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Provisional application No. 63/282,383, filed on Nov. 23, 2021.

(51) **Int. Cl.**
A47B 88/57 (2017.01)
A47B 88/407 (2017.01)
A47B 88/423 (2017.01)

(52) **U.S. Cl.**
CPC ***A47B 88/57*** (2017.01); ***A47B 88/407*** (2017.01); *A47B 2088/4235* (2017.01); *A47B 2210/0081* (2013.01)

(58) **Field of Classification Search**
CPC . A47B 88/407; A47B 88/0407; A47B 88/423; A47B 88/0418; A47B 88/427; A47B 88/0422; A47B 88/44; A47B 88/443; A47B 88/473; A47B 88/477; A47B 88/57; A47B 88/16; A47B 2088/4235; A47B 2088/0444; A47B 2210/0016; A47B 2210/0018; A47B 2210/0081
See application file for complete search history.

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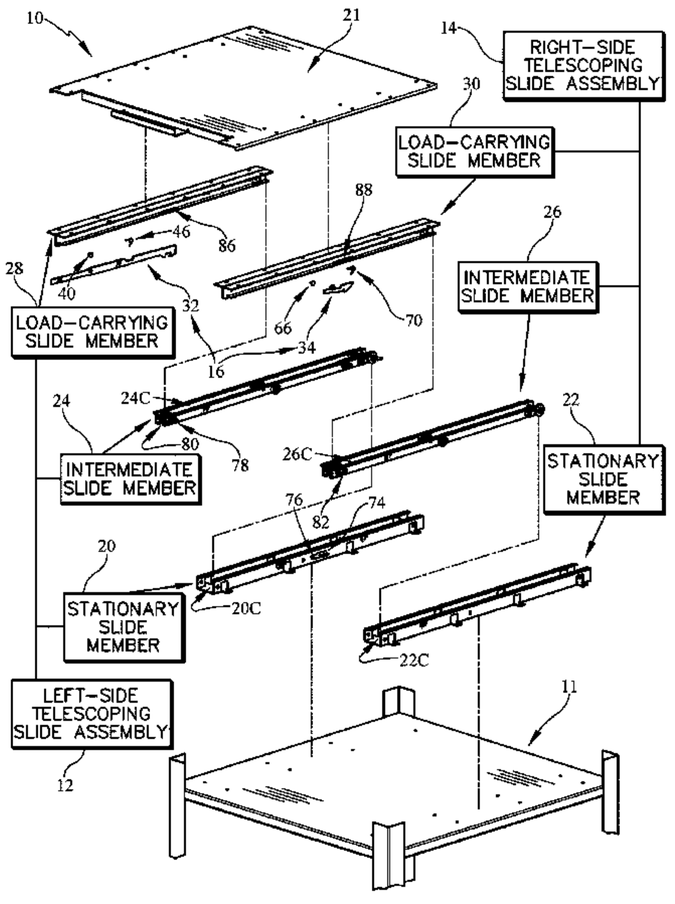
Primary Examiner — Andrew M Roersma
(74) *Attorney, Agent, or Firm* — Barnes & Thornburg LLP

(57) **ABSTRACT**

A telescoping slide system comprising a left-side telescoping slide assembly and a right-side telescoping slide assembly that each include interconnected slide members moveable to extend and retract among a retracted-storage stage and an extended-service stage. Each telescoping slide assembly includes a stationary slide member, a intermediate slide member that moves relative to the stationary slide member in a channel formed in the stationary slide member, and a load-carrying slide member that moves relative to the stationary slide member and the intermediate slide member in a channel formed in the intermediate slide member.

20 Claims, 16 Drawing Sheets



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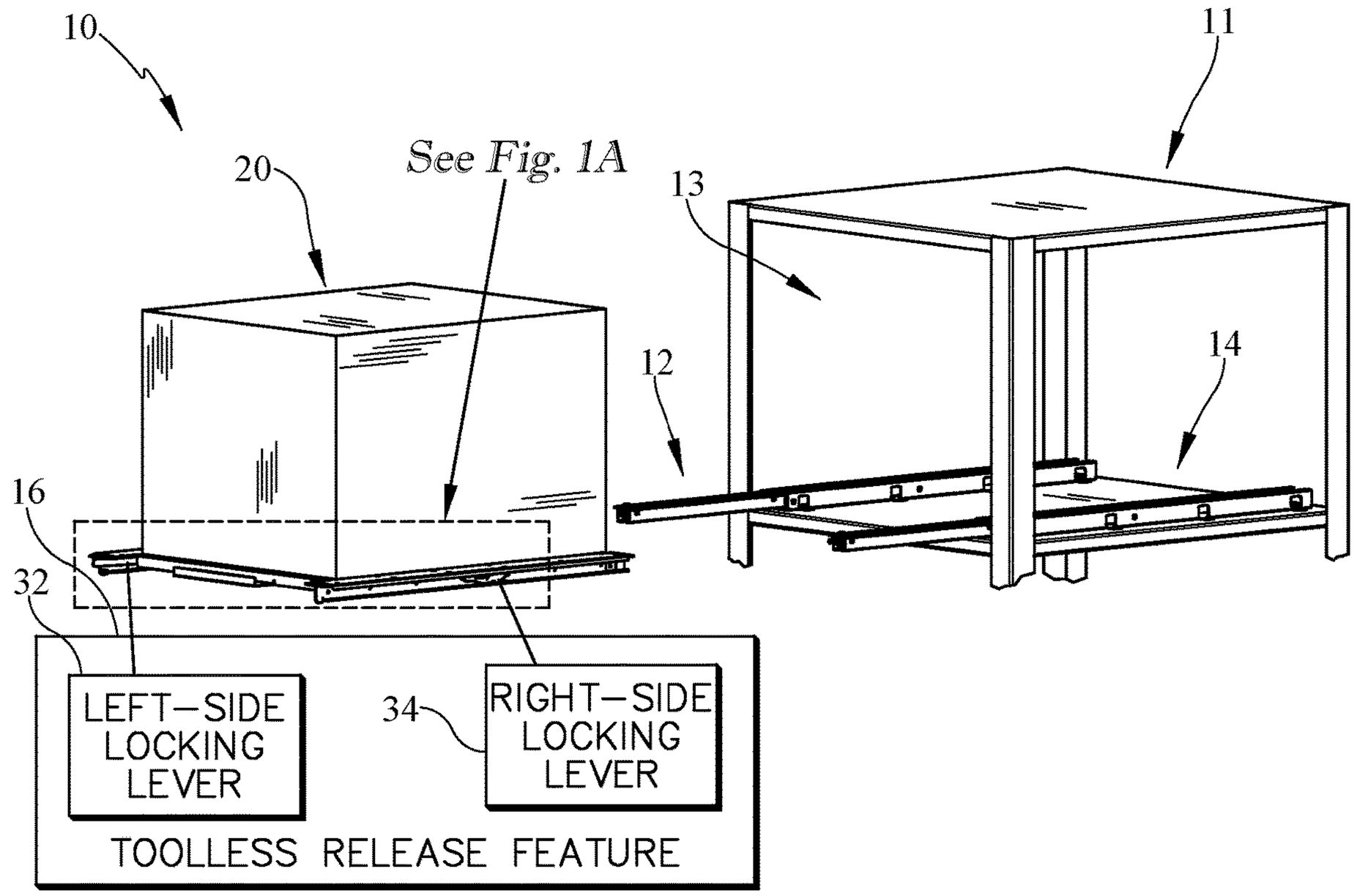
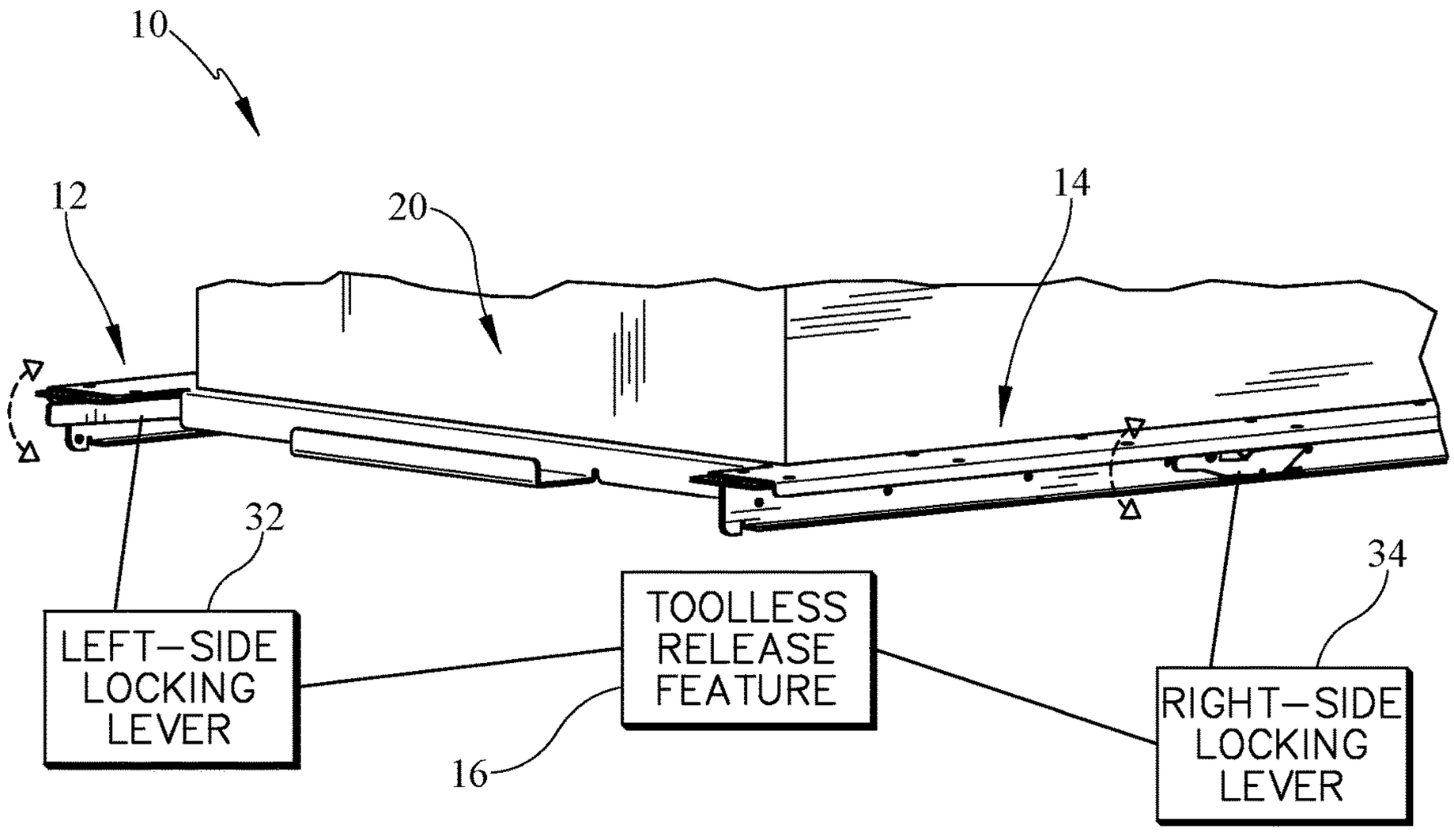

10
11
See Fig. 1A
20
13
12
14
16
32
34
LEFT–SIDE LOCKING LEVER
RIGHT–SIDE LOCKING LEVER
TOOLLESS RELEASE FEATURE

FIG. 1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32
34
LEFT–SIDE LOCKING LEVER
TOOLLESS RELEASE FEATURE
16
RIGHT–SIDE LOCKING LEVER

FIG. 1A

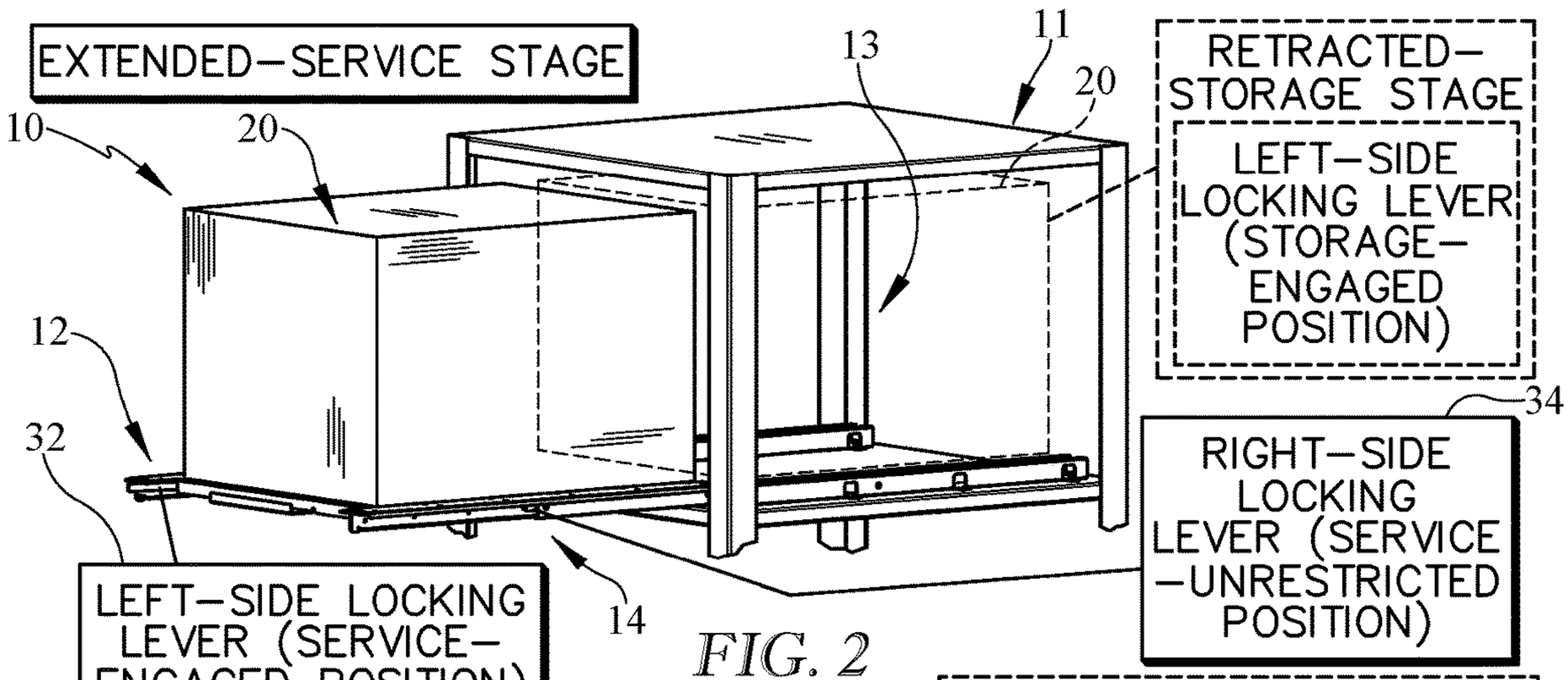


FIG. 2

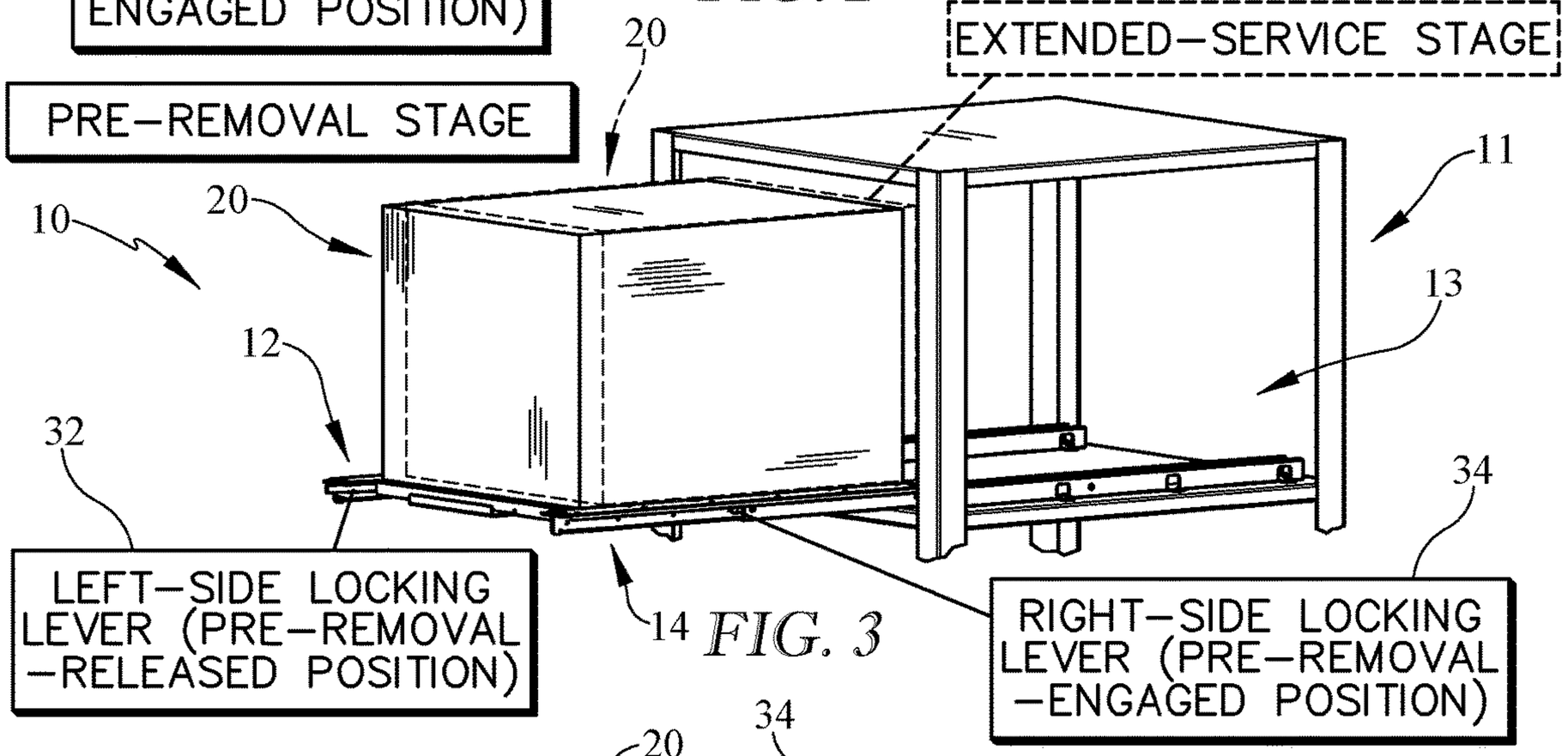


FIG. 3

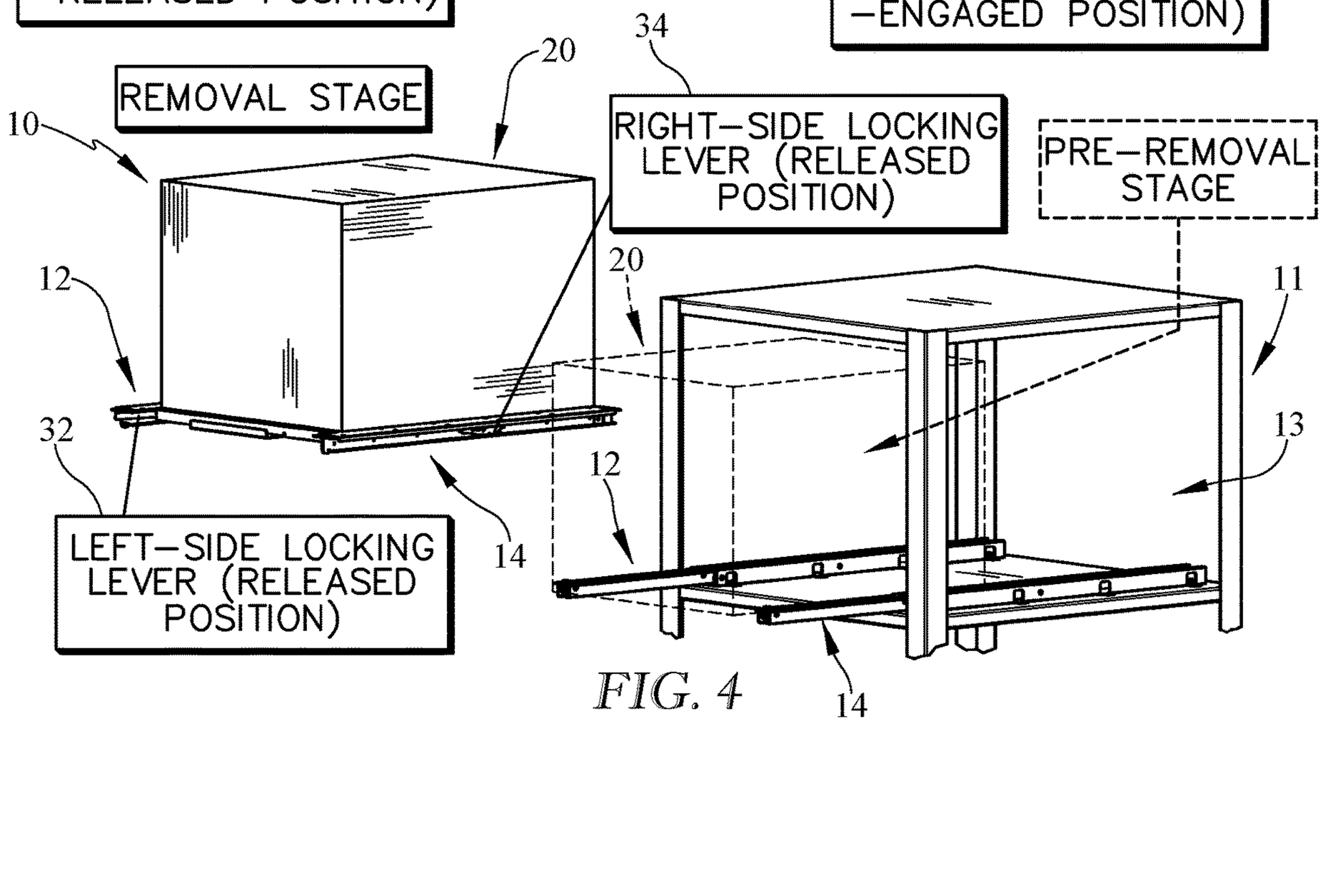


FIG. 4

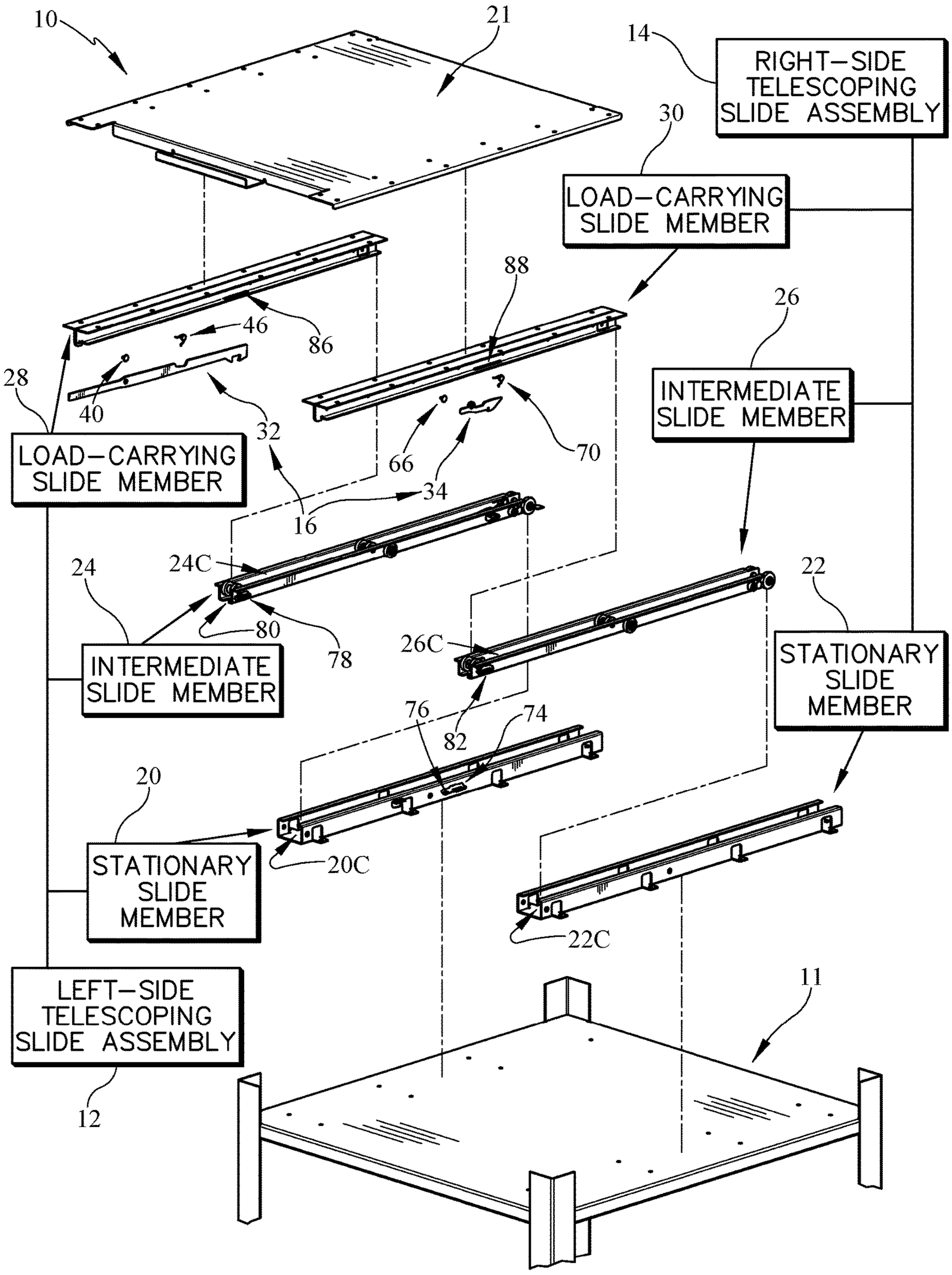

10
21
14
RIGHT-SIDE TELESCOPING SLIDE ASSEMBLY
30
LOAD-CARRYING SLIDE MEMBER
88
26
INTERMEDIATE SLIDE MEMBER
46
86
28
40
32
66
34
70
LOAD-CARRYING SLIDE MEMBER
16
24
24C
22
80
78
26C
INTERMEDIATE SLIDE MEMBER
STATIONARY SLIDE MEMBER
76
74
82
20
STATIONARY SLIDE MEMBER
20C
22C
LEFT-SIDE TELESCOPING SLIDE ASSEMBLY
11
12

FIG. 5

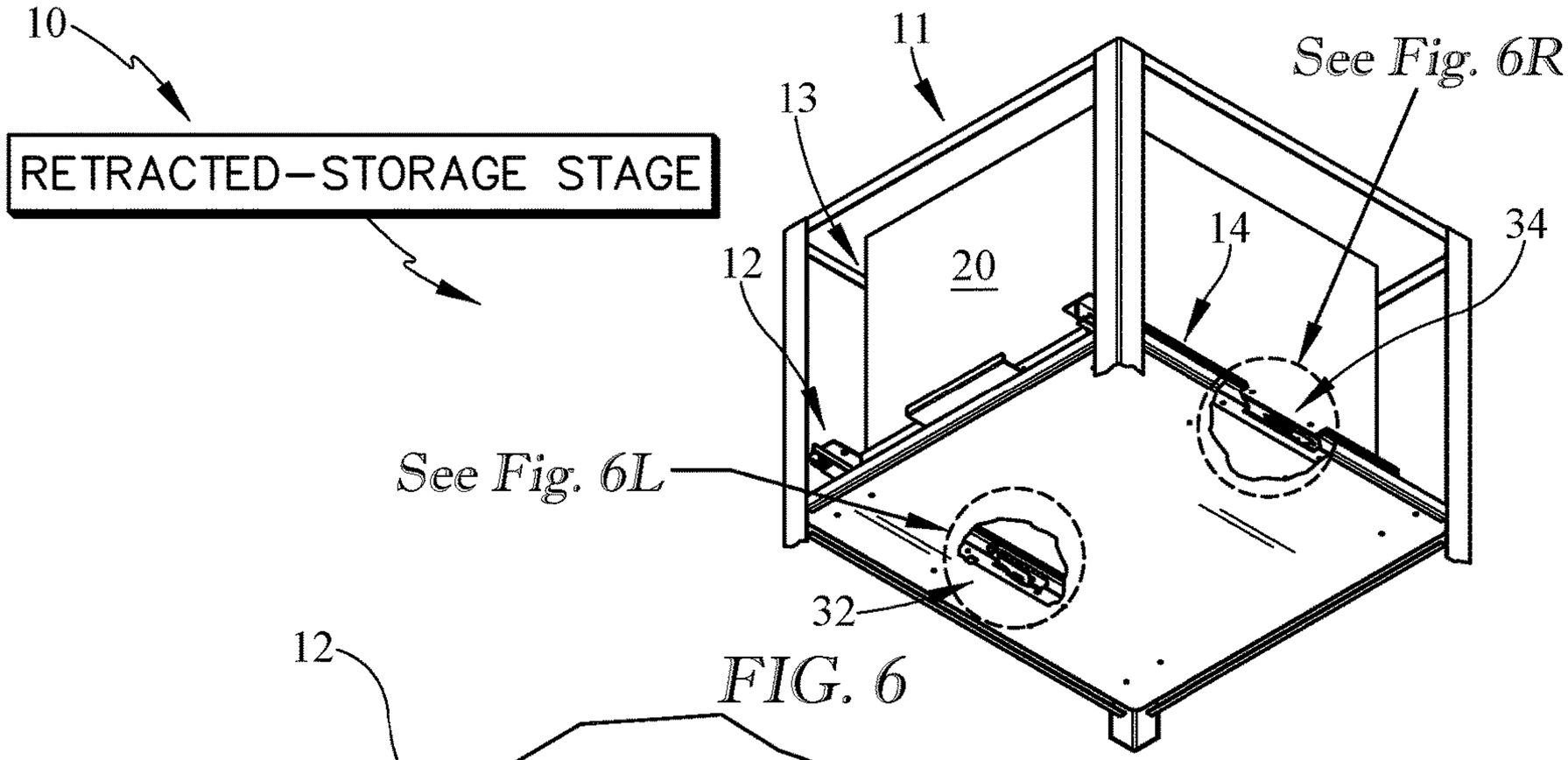


FIG. 6

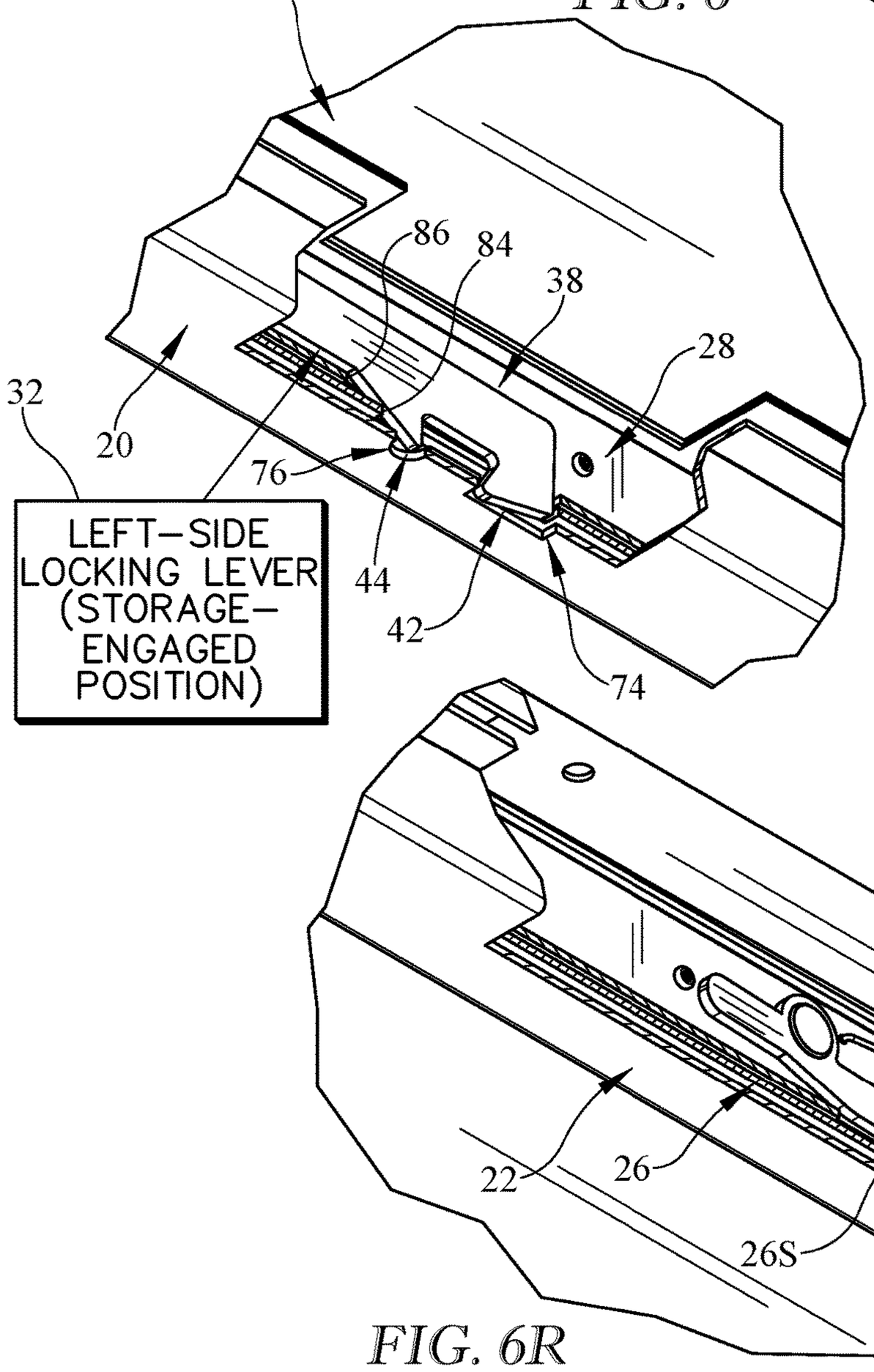


FIG. 6L

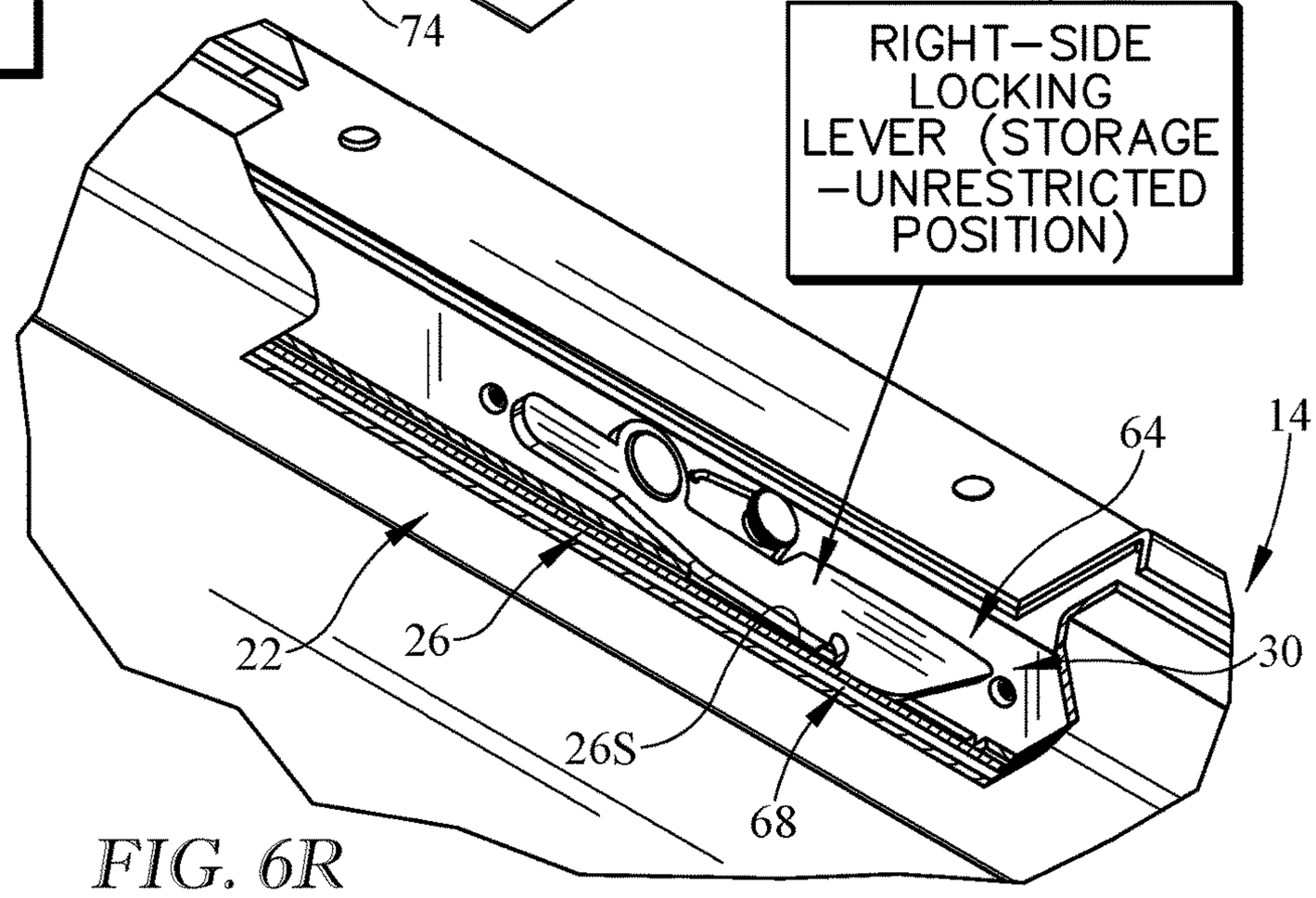


FIG. 6R

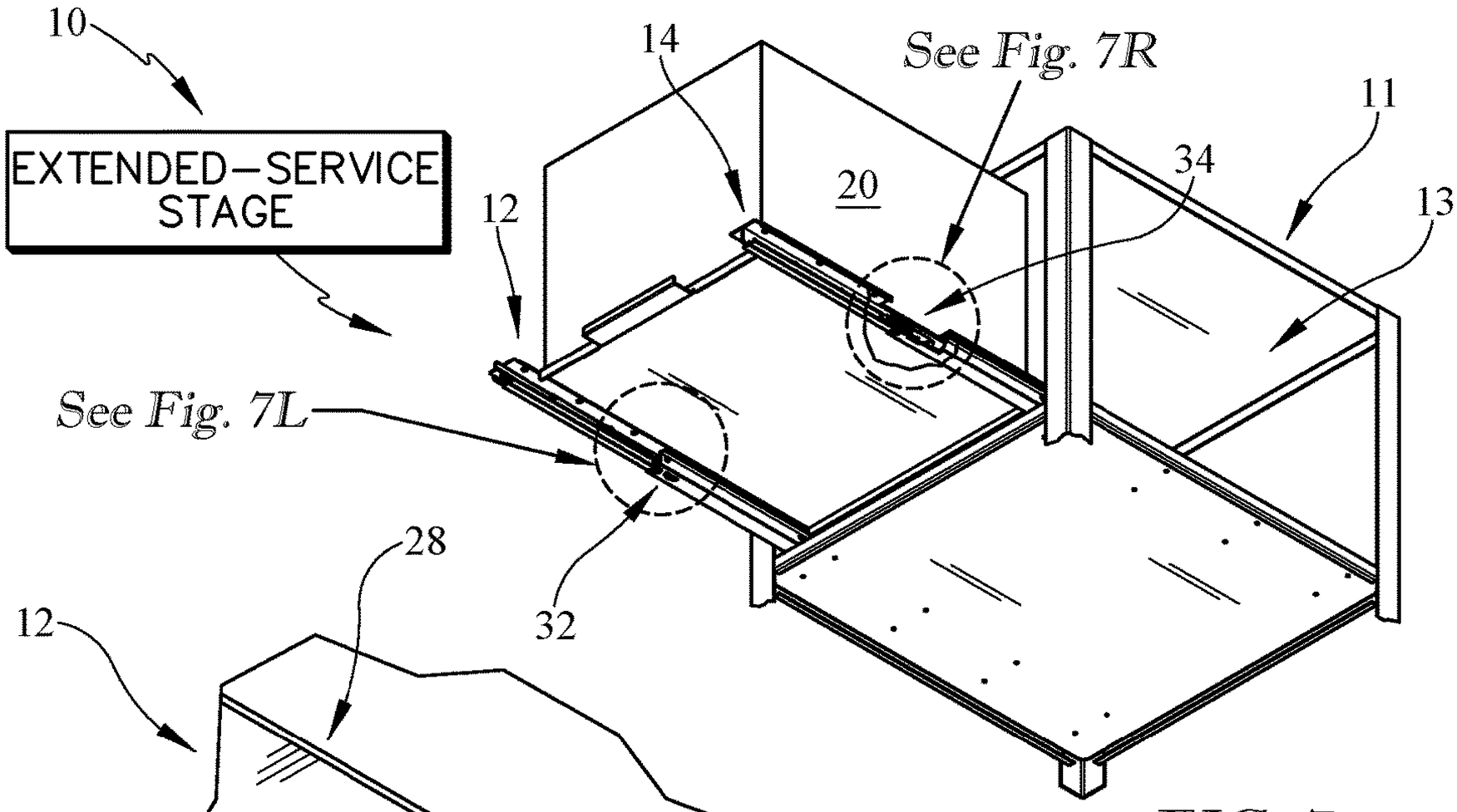


FIG. 7

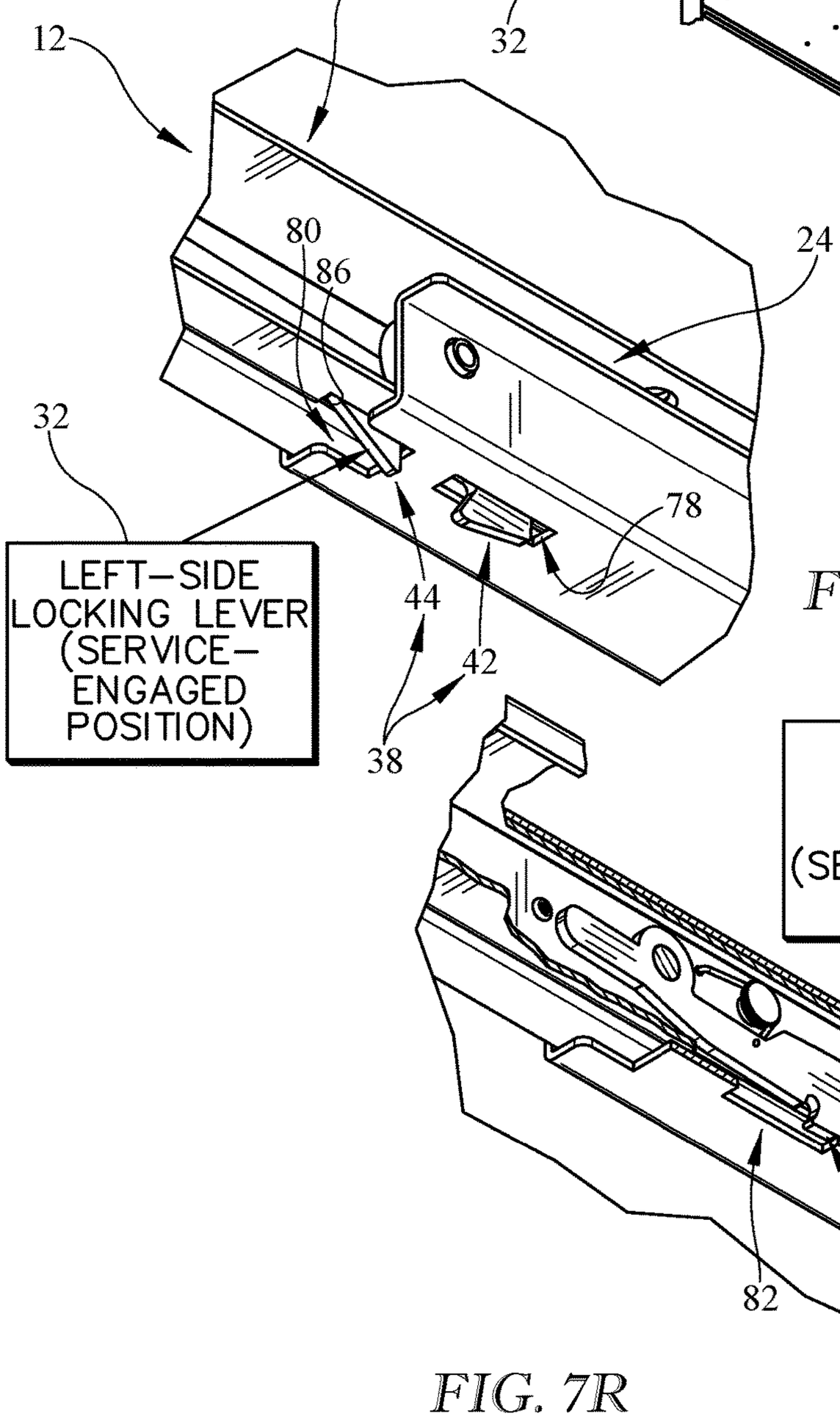


FIG. 7L

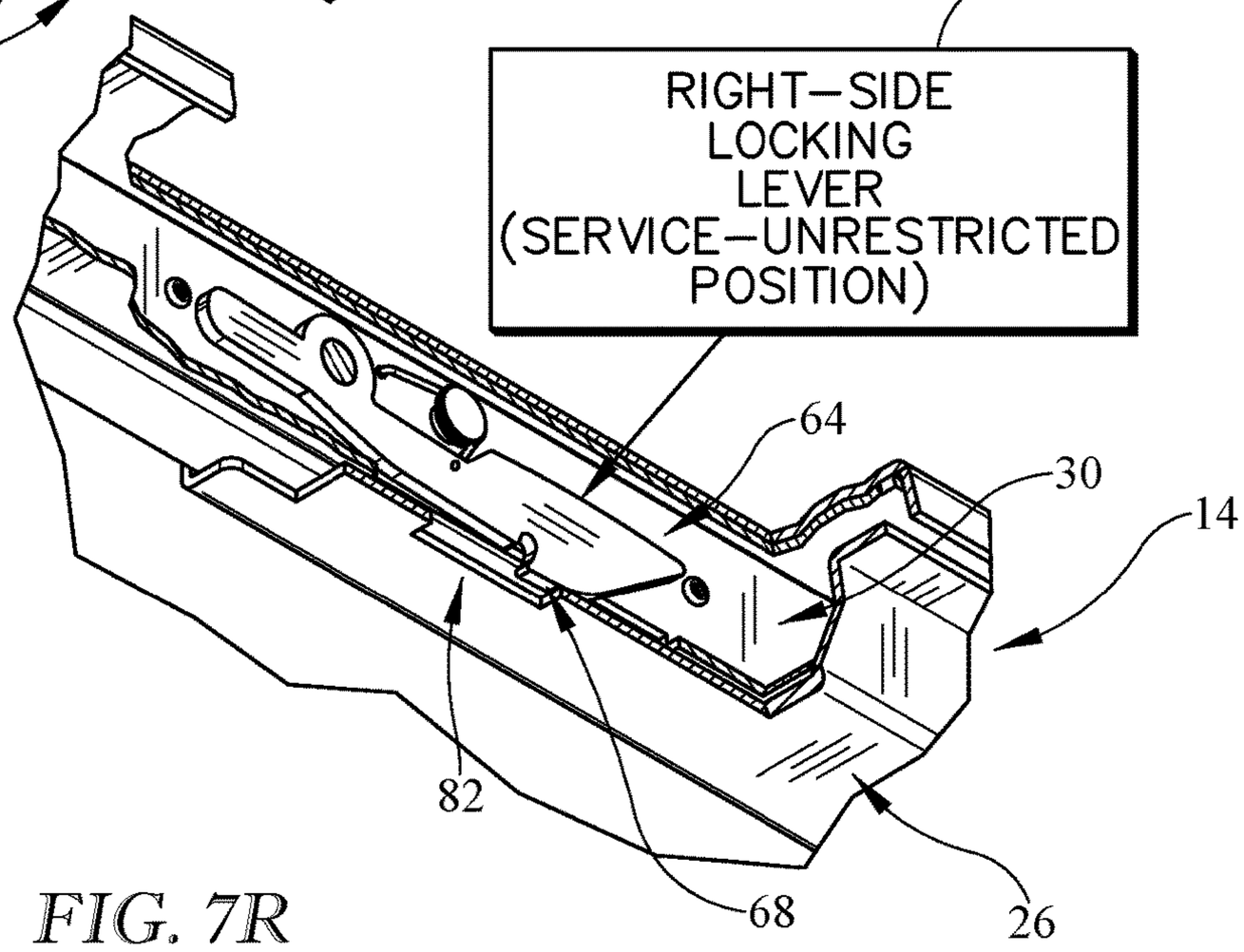


FIG. 7R

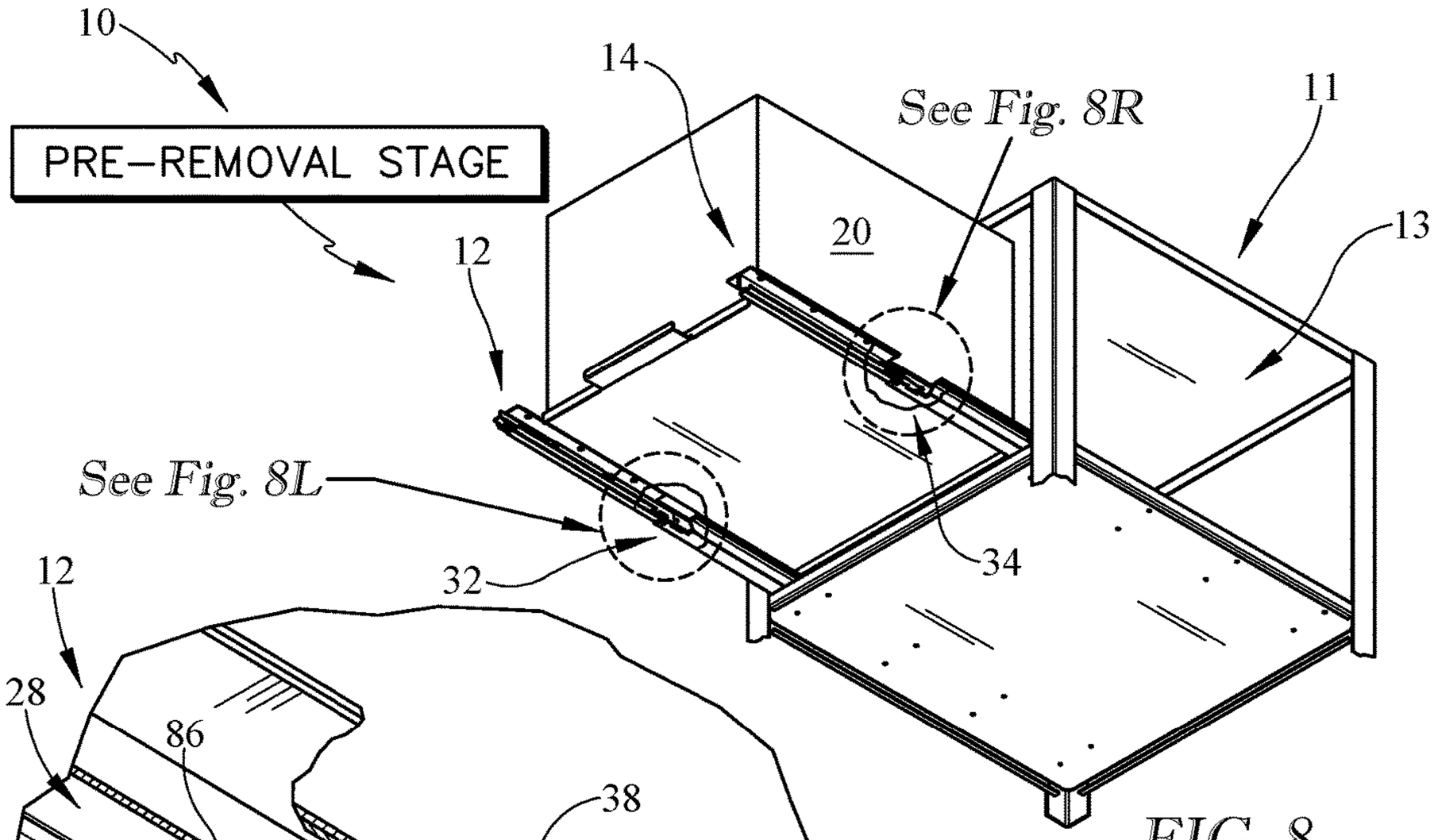


FIG. 8

FIG. 8L

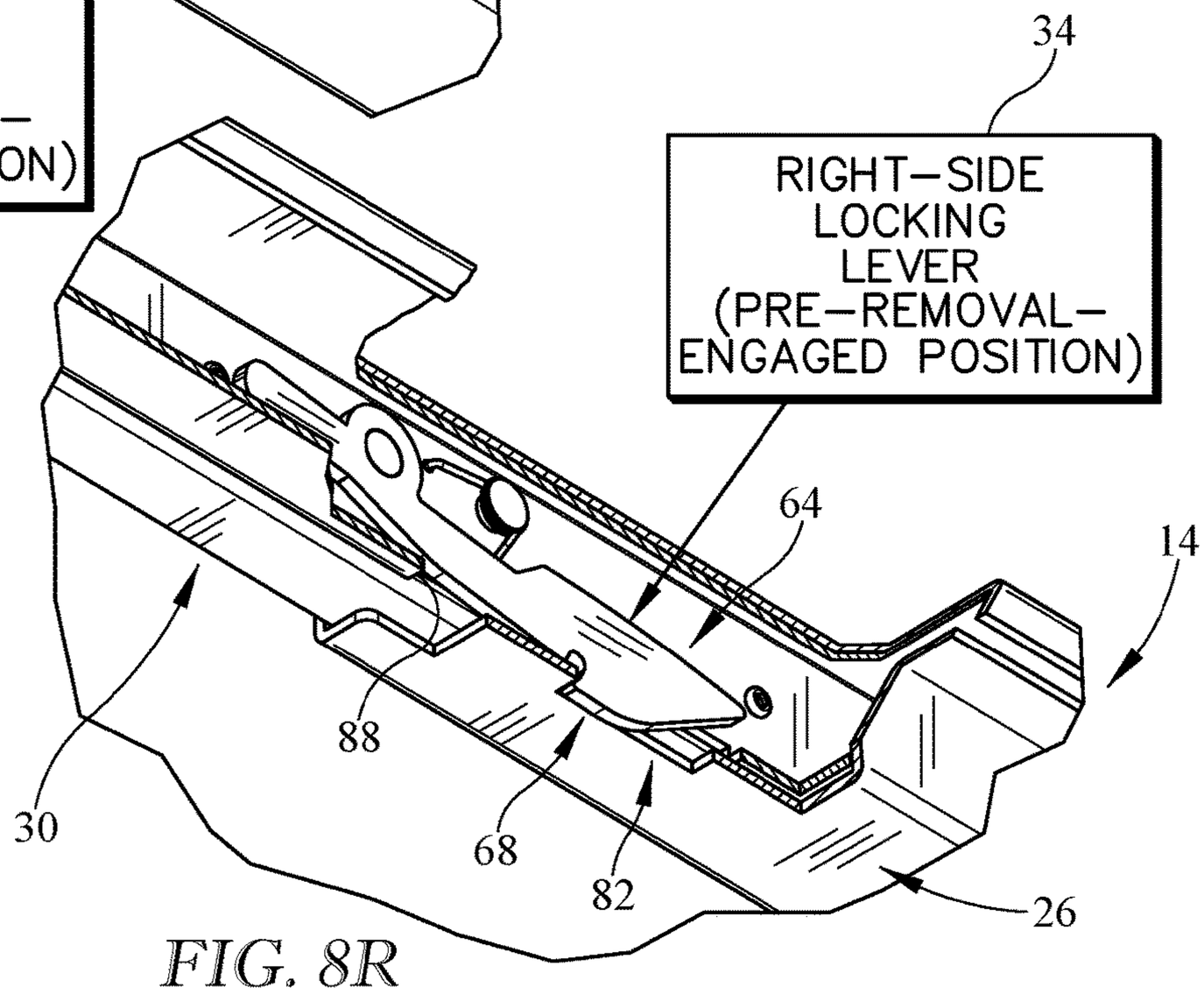


FIG. 8R

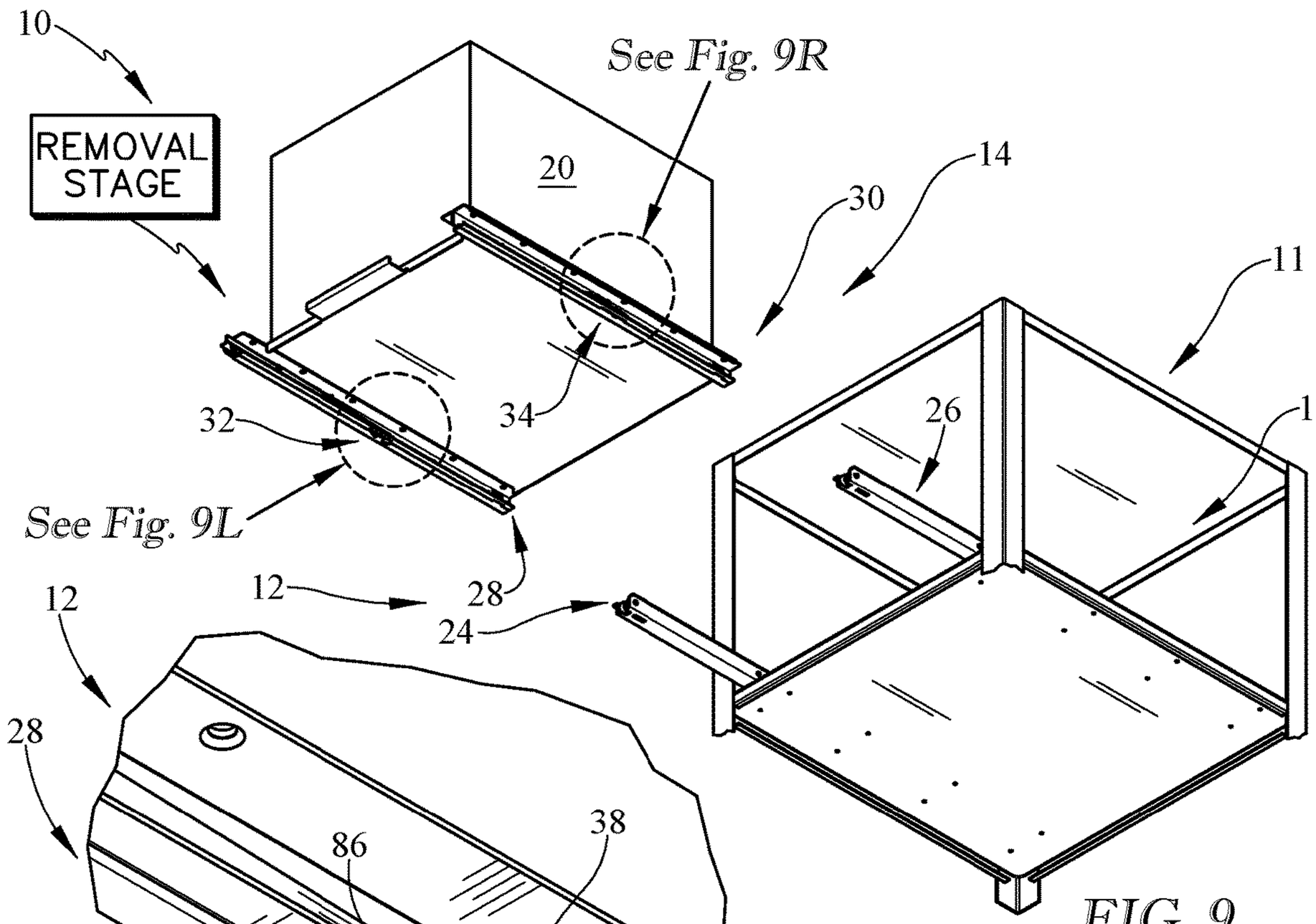


FIG. 9

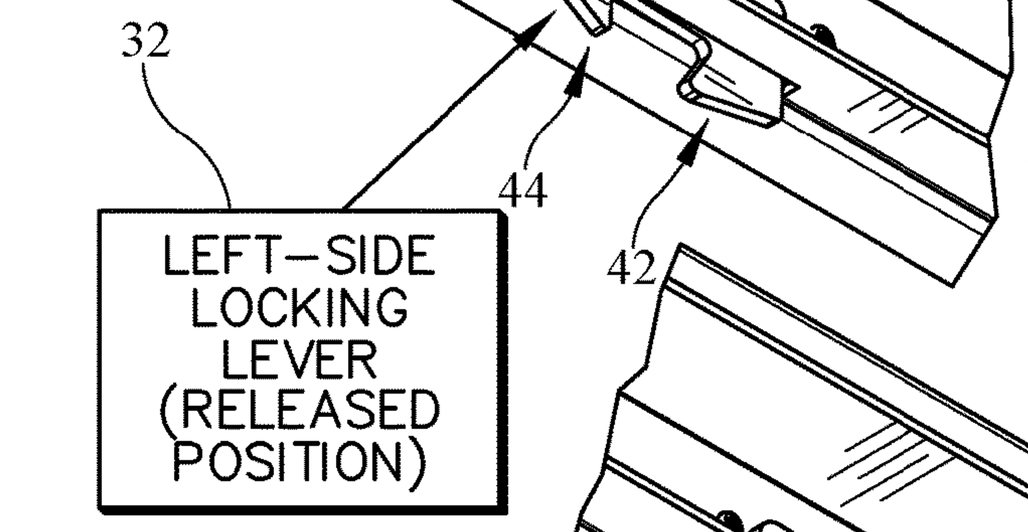


FIG. 9L

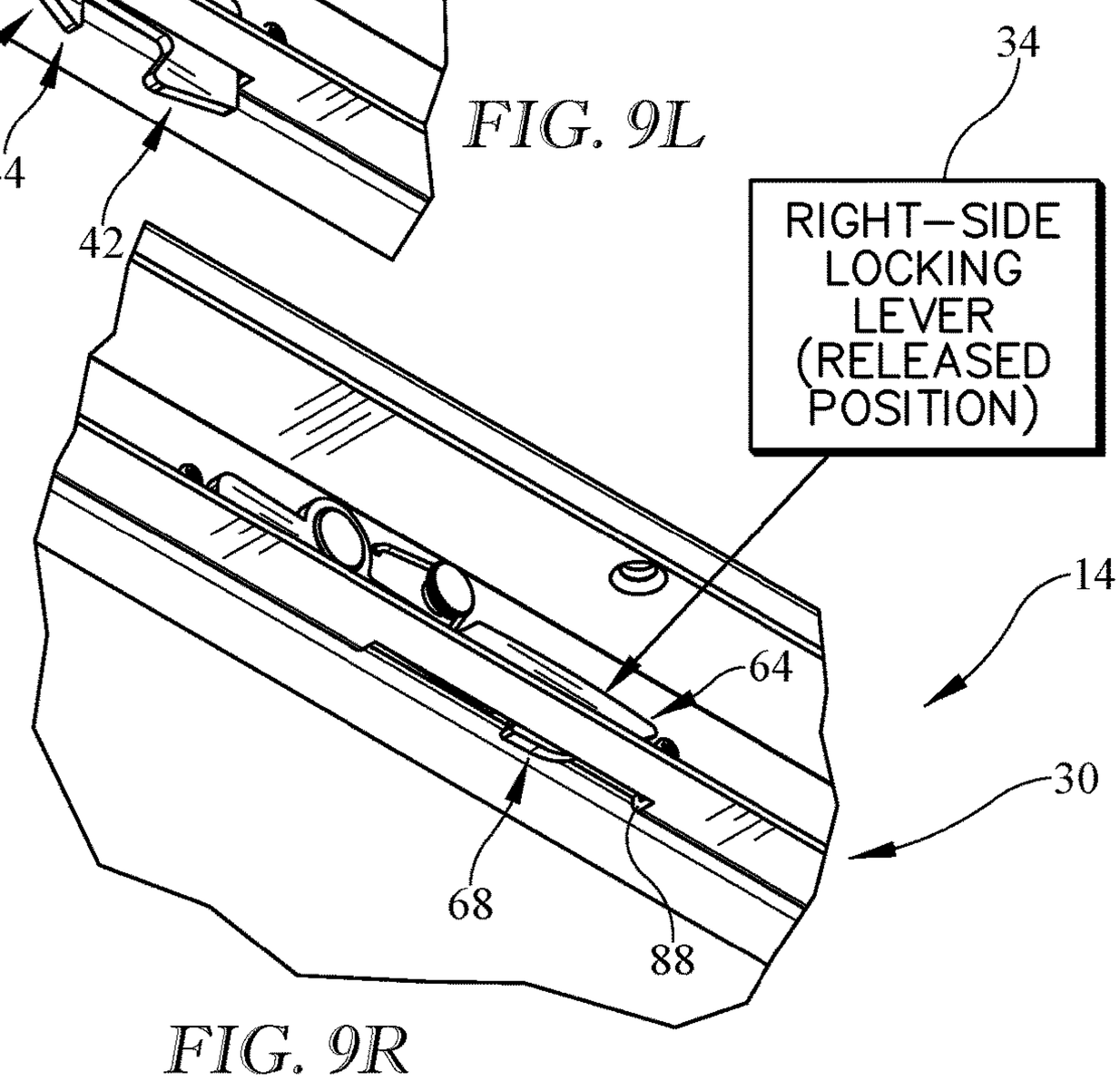


FIG. 9R

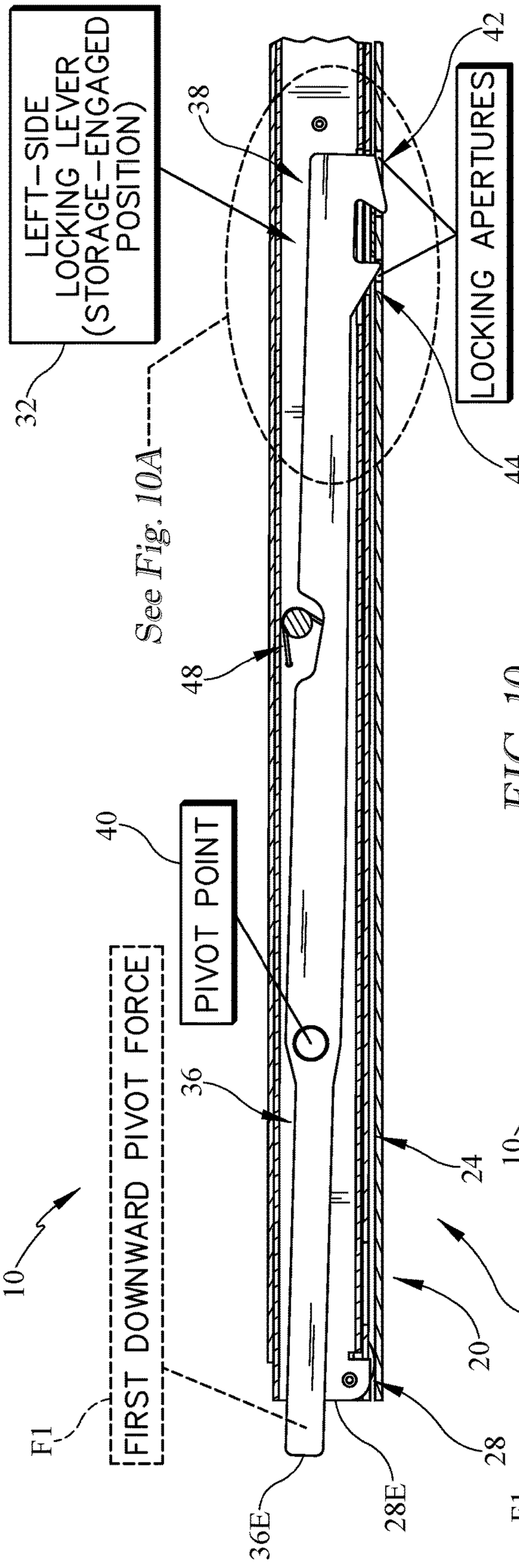

LEFT-SIDE LOCKING LEVER (STORAGE-ENGAGED POSITION)
32
38
LOCKING APERTURES
42
44
48
See Fig. 10A--
40
PIVOT POINT
FIRST DOWNWARD PIVOT FORCE
F1
36
36E
24
20
12
28
28E
10

FIG. 10

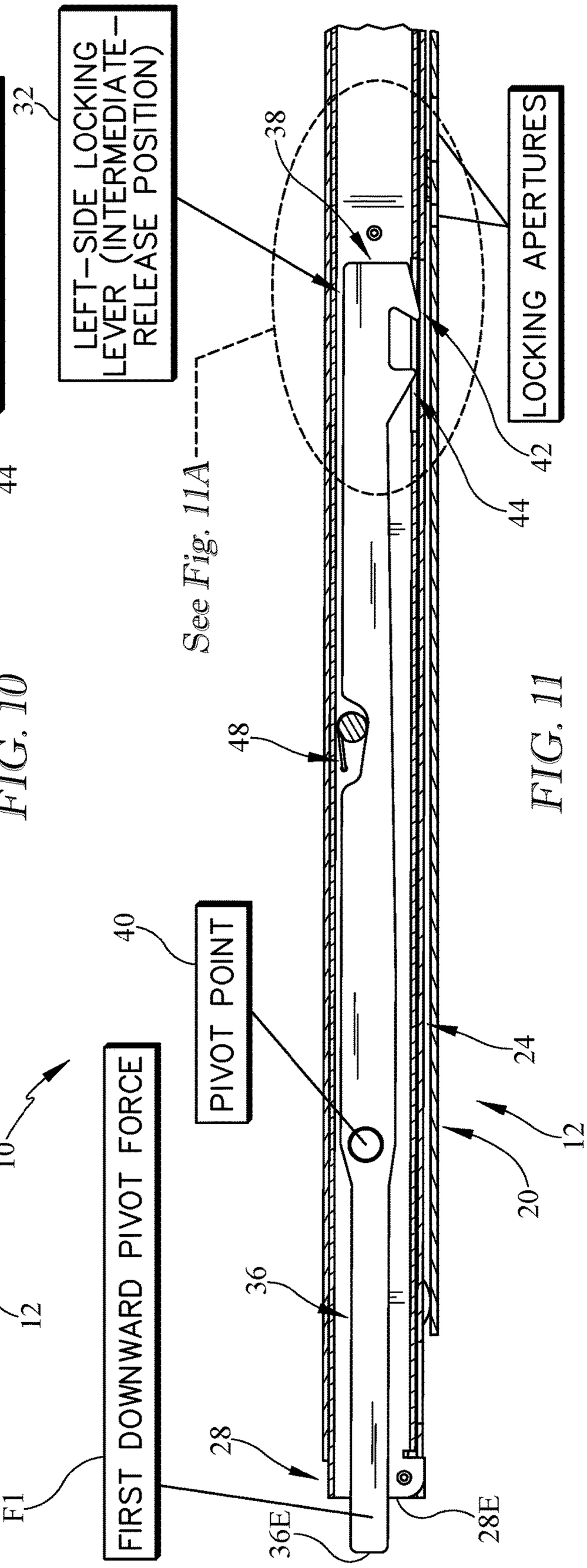

LEFT-SIDE LOCKING LEVER (INTERMEDIATE-RELEASE POSITION)
32
38
LOCKING APERTURES
42
44
48
See Fig. 11A--
40
PIVOT POINT
FIRST DOWNWARD PIVOT FORCE
F1
36
36E
24
20
12
28
28E
10

FIG. 11

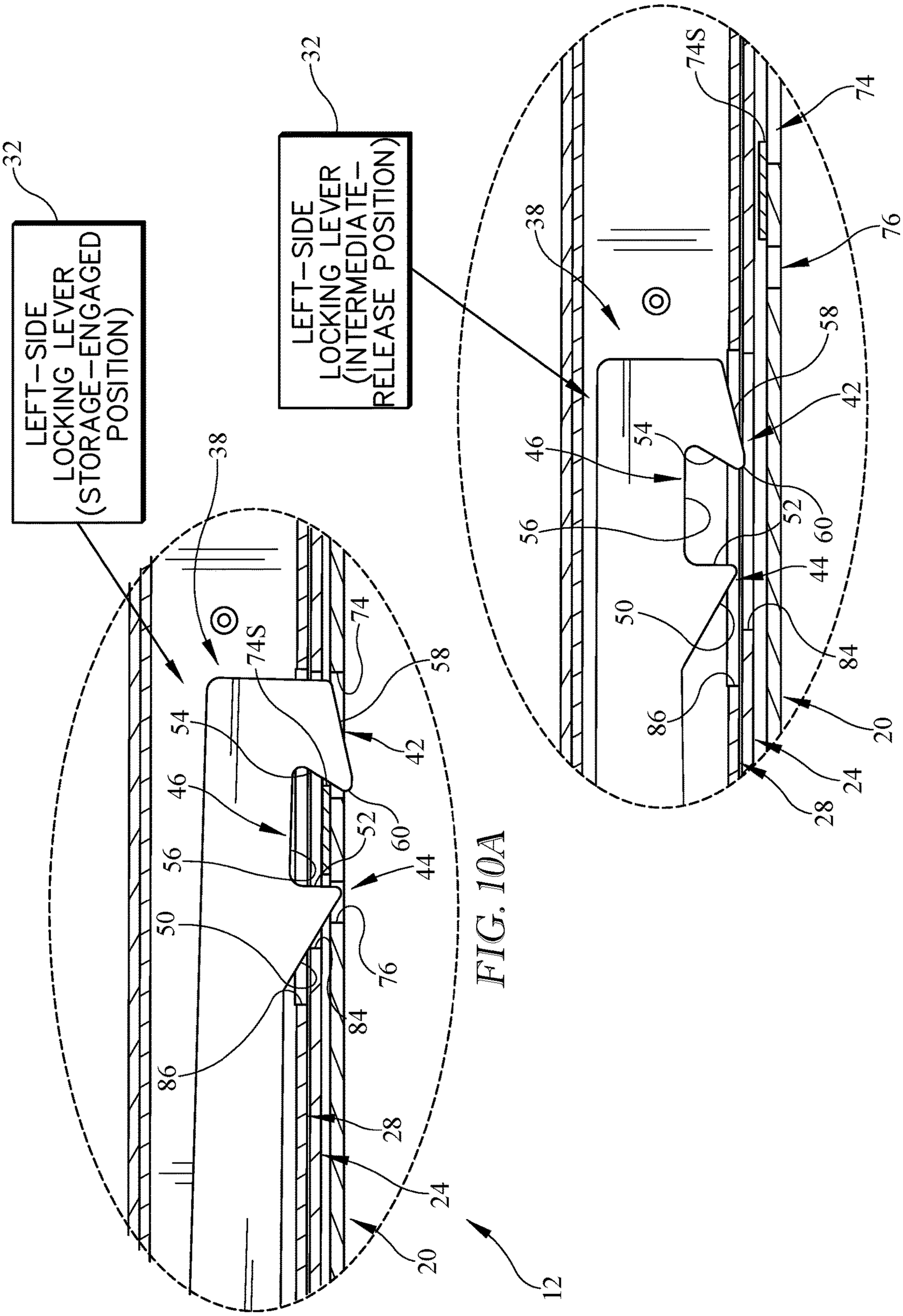


FIG. 10A

FIG. 11A

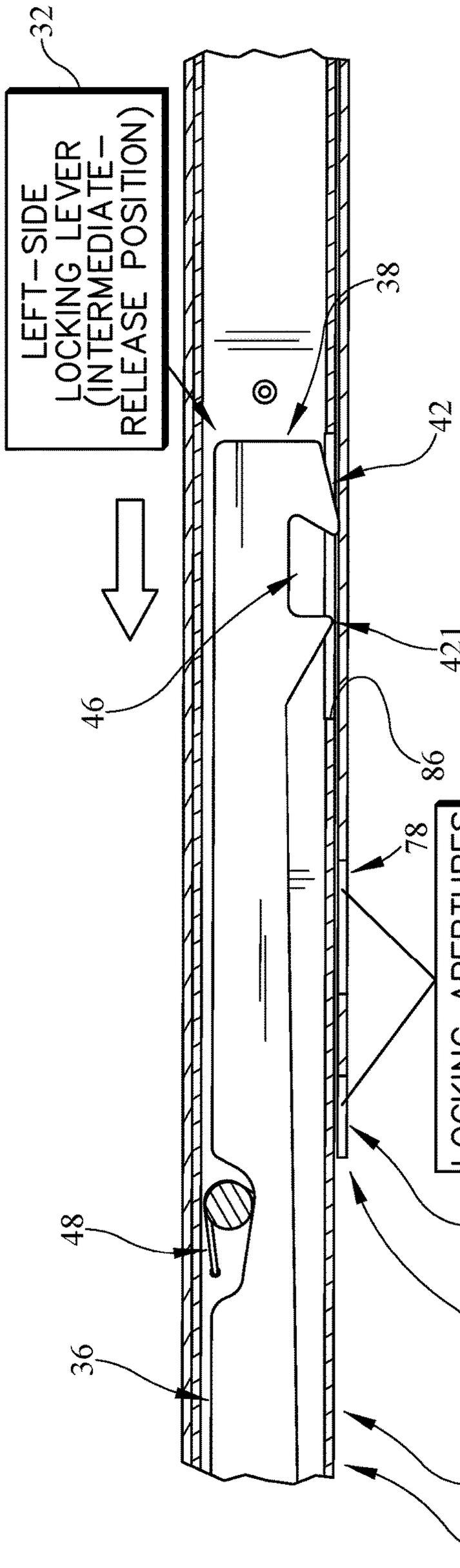

LEFT-SIDE LOCKING LEVER (INTERMEDIATE-RELEASE POSITION)
32
38
42
46
421
86
78
LOCKING APERTURES
48
36
24
28
12
80

FIG. 12

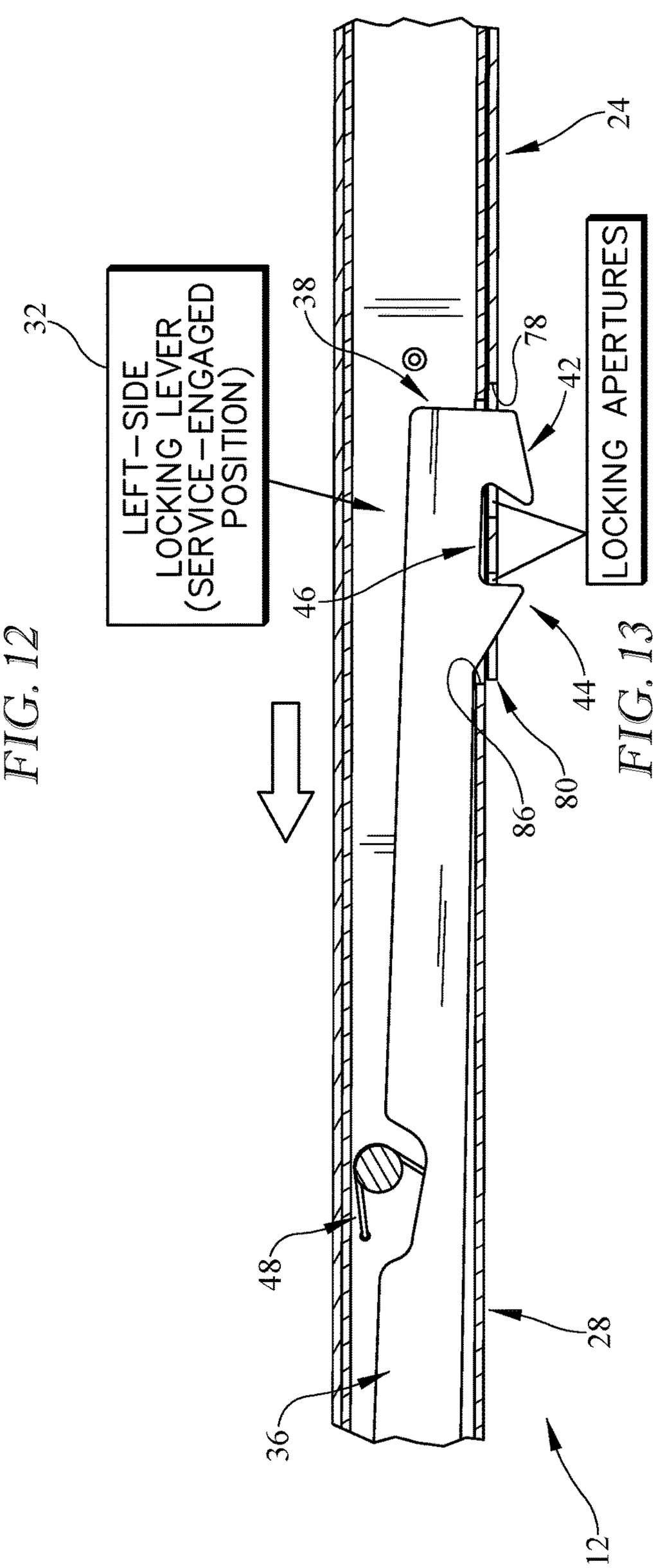

LEFT-SIDE LOCKING LEVER (SERVICE-ENGAGED POSITION)
32
38
24
78
42
LOCKING APERTURES
46
44
86
80
48
36
28
12

FIG. 13

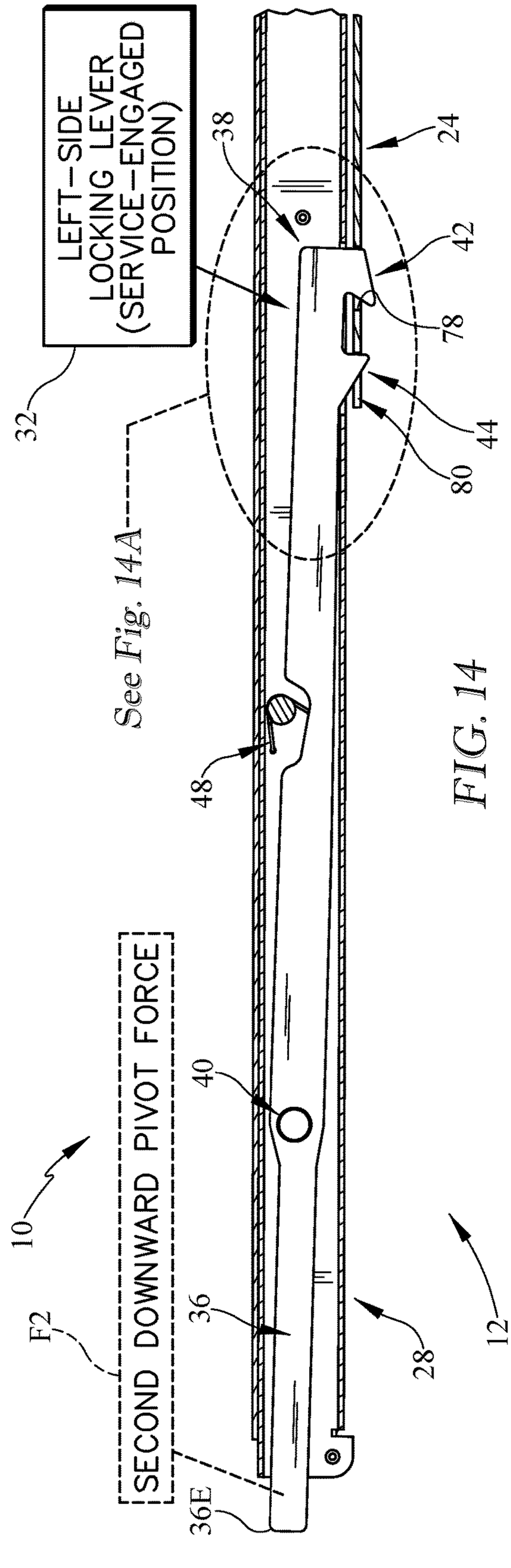

LEFT-SIDE LOCKING LEVER (SERVICE-ENGAGED POSITION)
32
See Fig. 14A
38
24
42
78
44
80
48
SECOND DOWNWARD PIVOT FORCE
F2
10
40
36
36E
28
12

FIG. 14

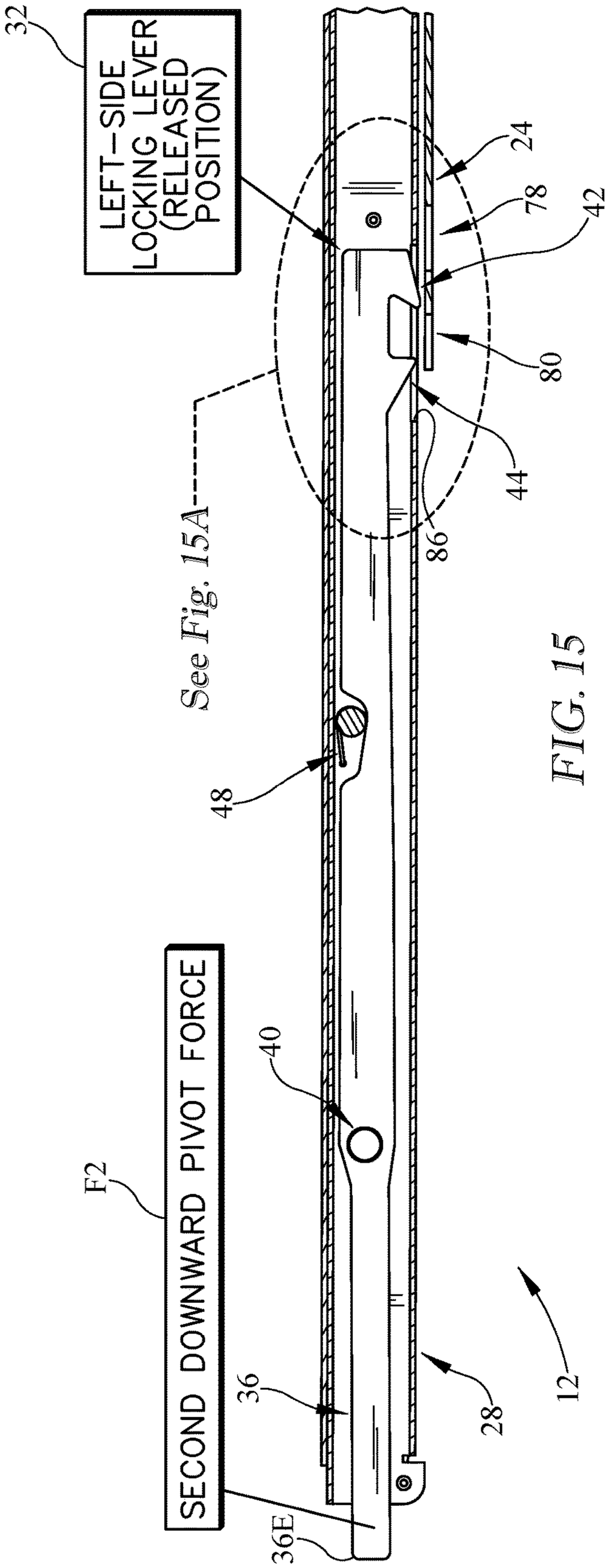

LEFT-SIDE LOCKING LEVER (RELEASED POSITION)
32
See Fig. 15A
24
78
42
80
44
86
48
SECOND DOWNWARD PIVOT FORCE
F2
40
36
36E
28
12

FIG. 15

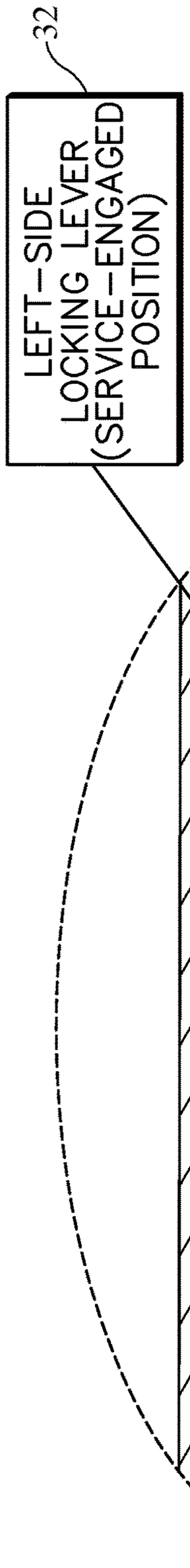


FIG. 14A

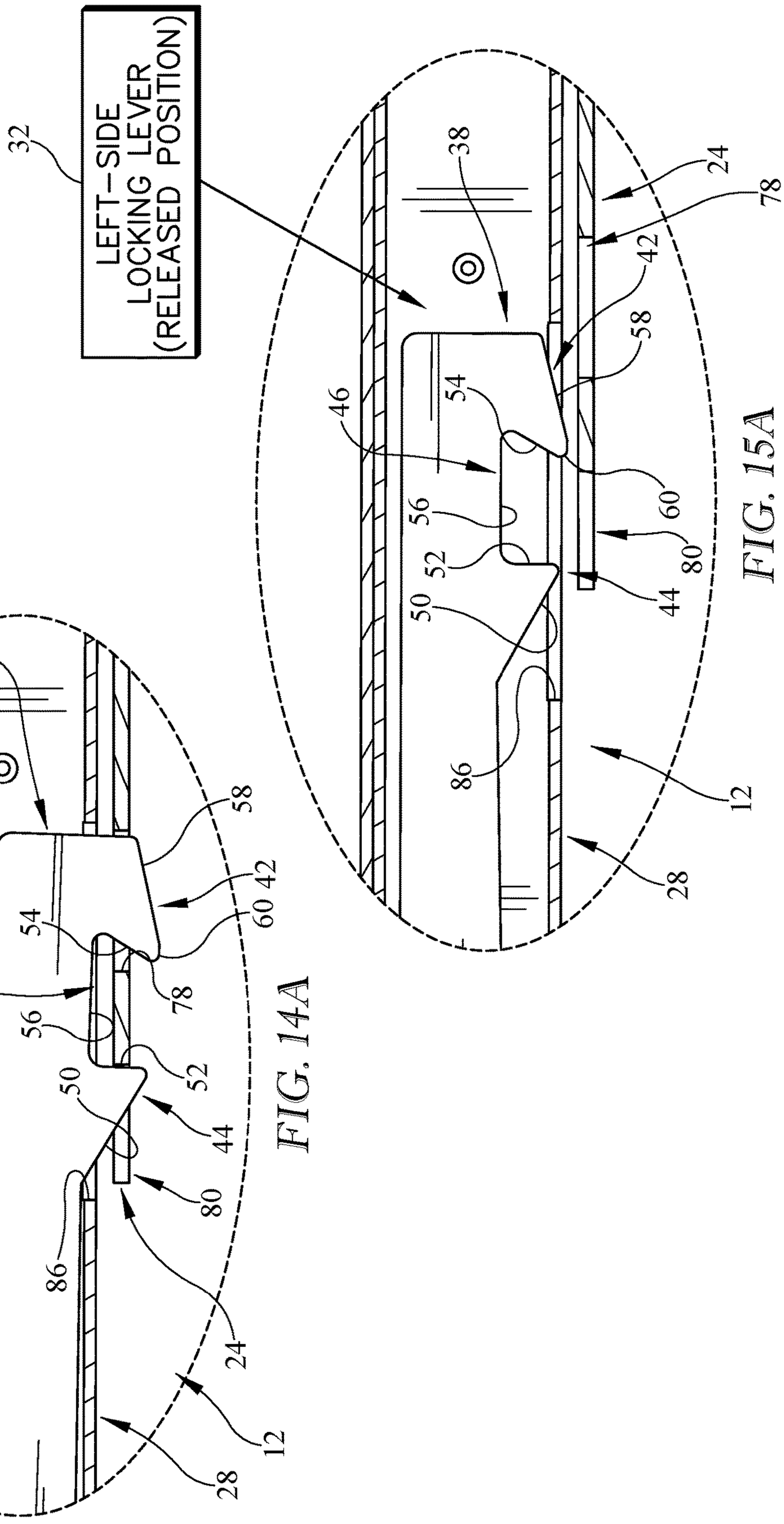


FIG. 15A

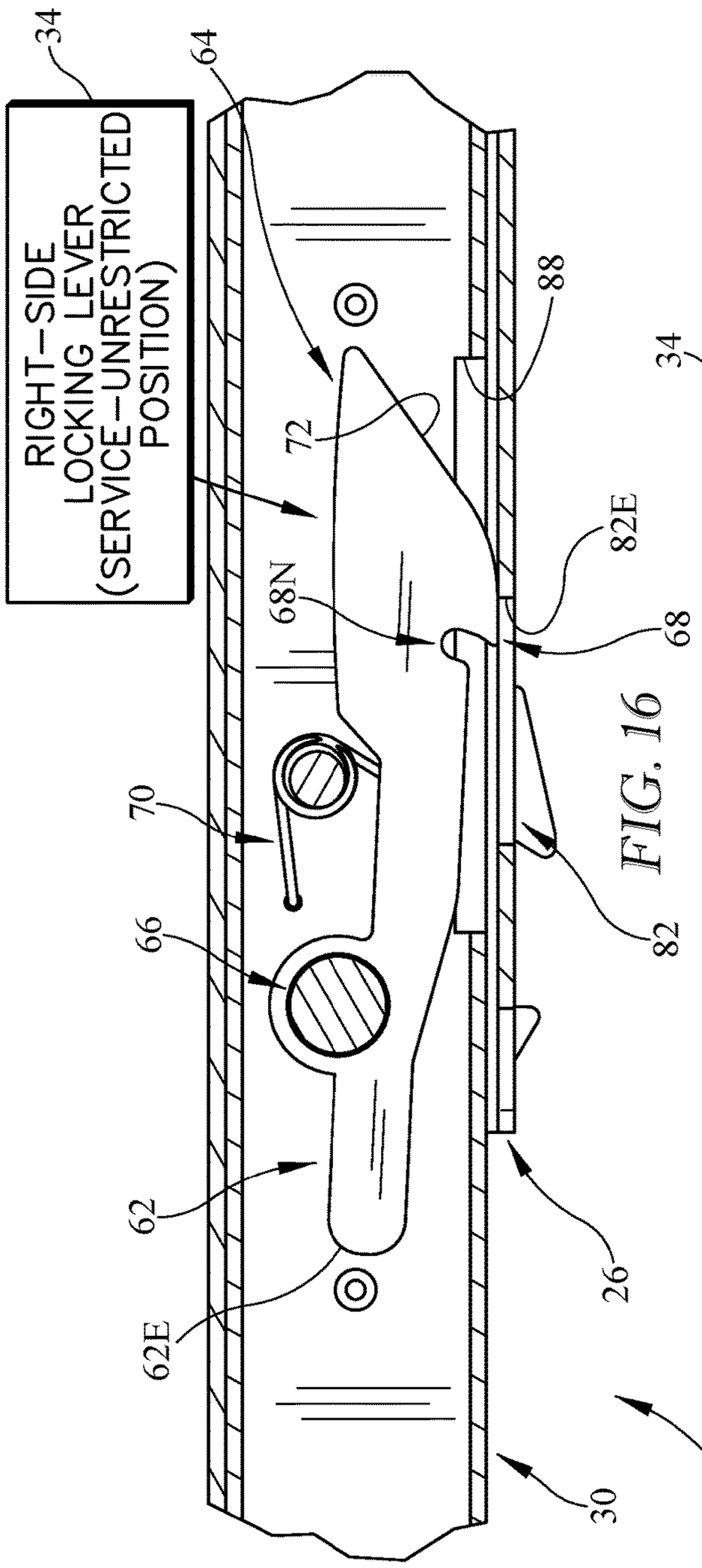
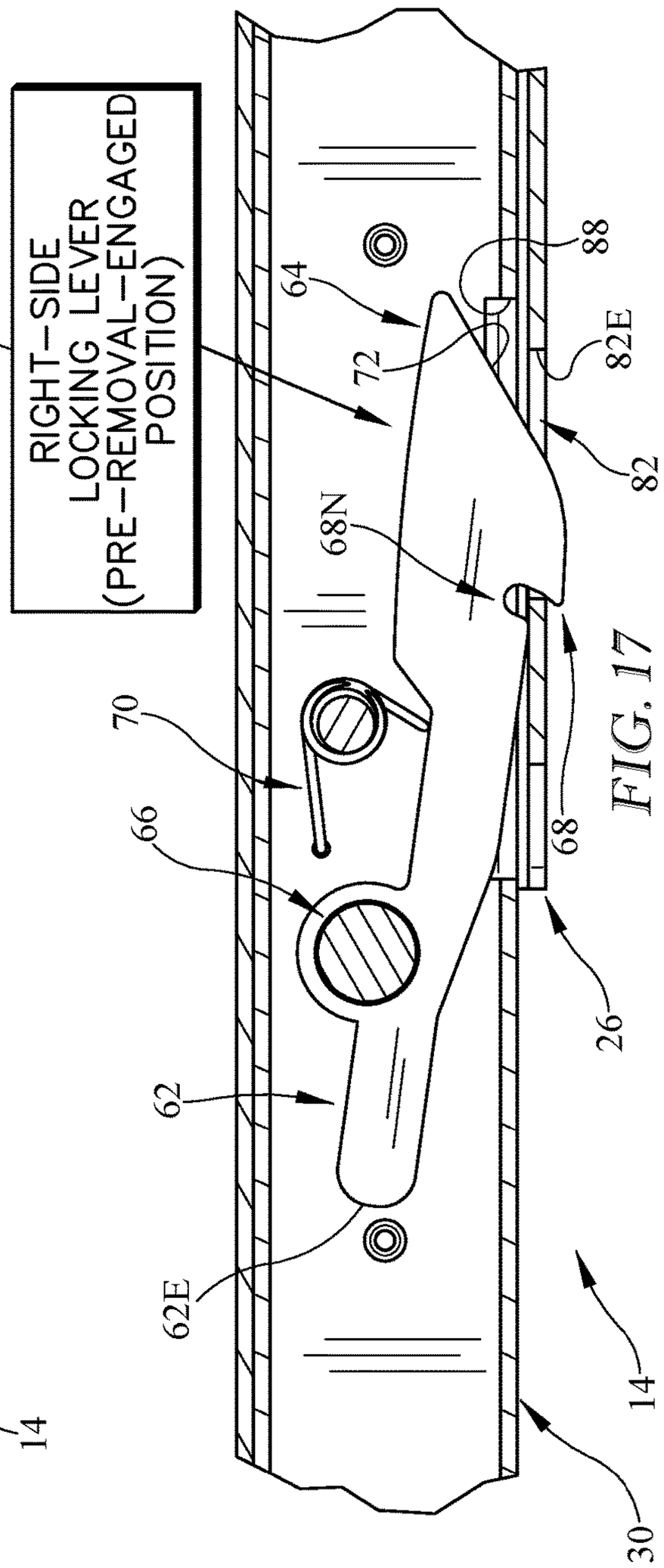

34
RIGHT-SIDE LOCKING LEVER (SERVICE-UNRESTRICTED POSITION)
64
72
88
82E
68N
68
70
66
82
62
62E
26
30
14

FIG. 16


34
RIGHT-SIDE LOCKING LEVER (PRE-REMOVAL-ENGAGED POSITION)
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72
88
82E
82
68N
70
66
68
62
62E
26
30
14

FIG. 17

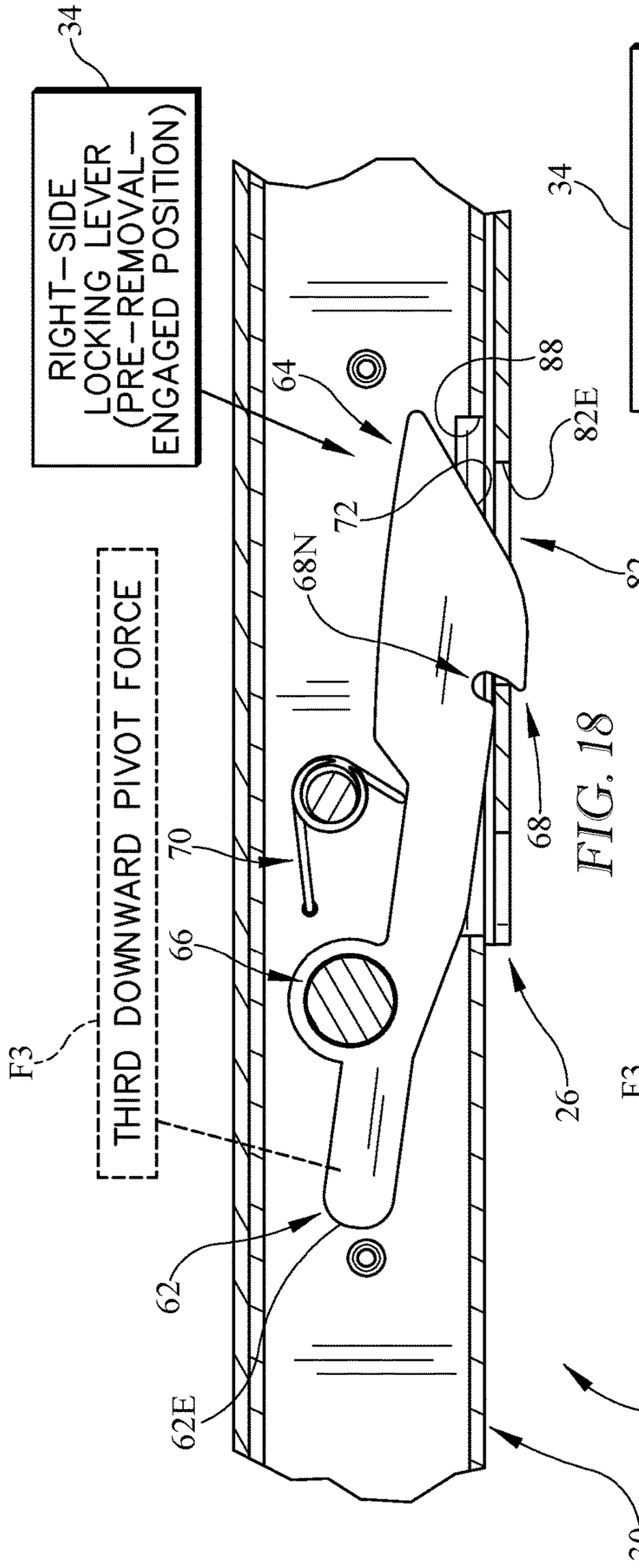
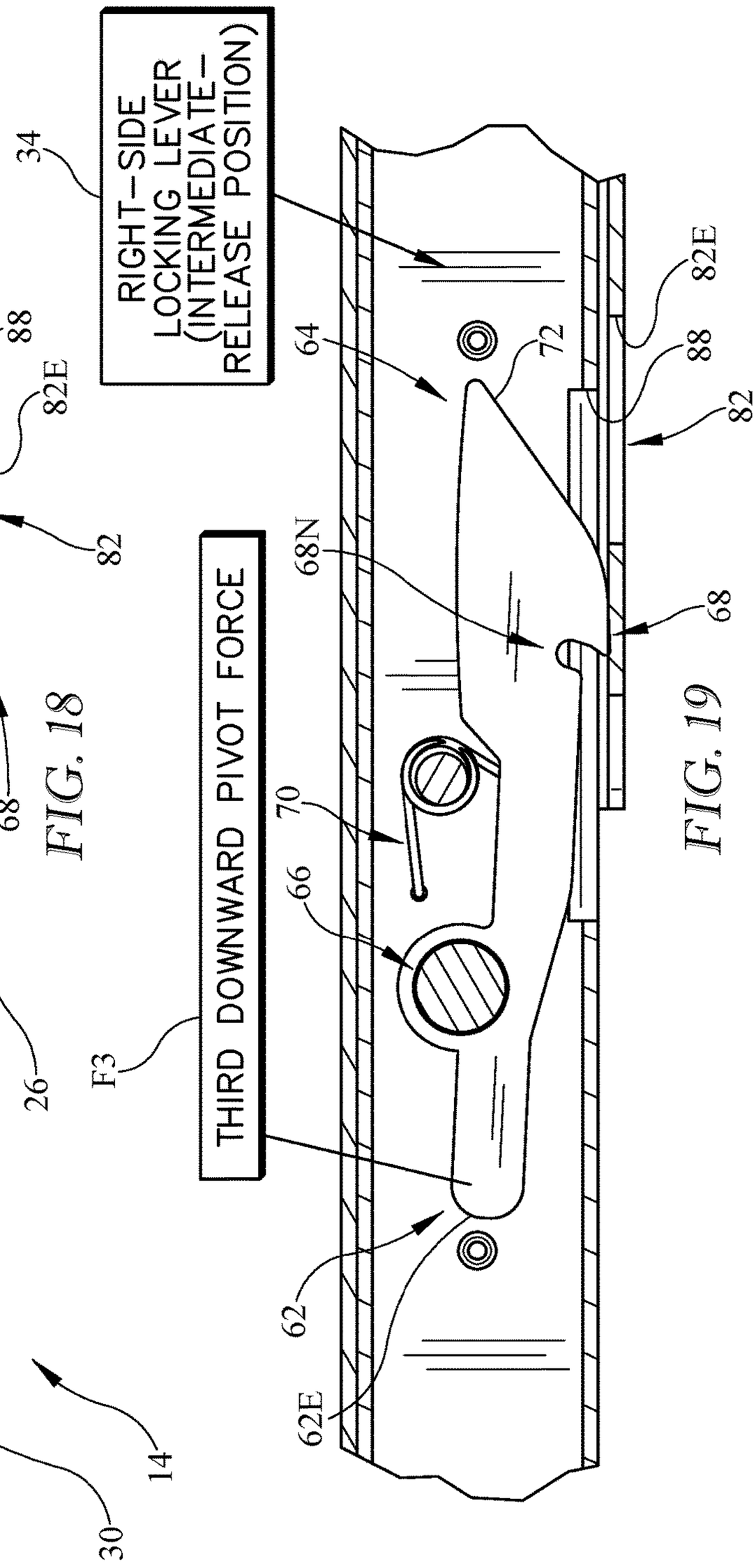

34
RIGHT-SIDE LOCKING LEVER (PRE-ENGAGE-REMOVAL-ENGAGED POSITION)
64
88
82E
72
82
68N
68
70
66
THIRD DOWNWARD PIVOT FORCE
F3
26
62
62E
30
14

FIG. 18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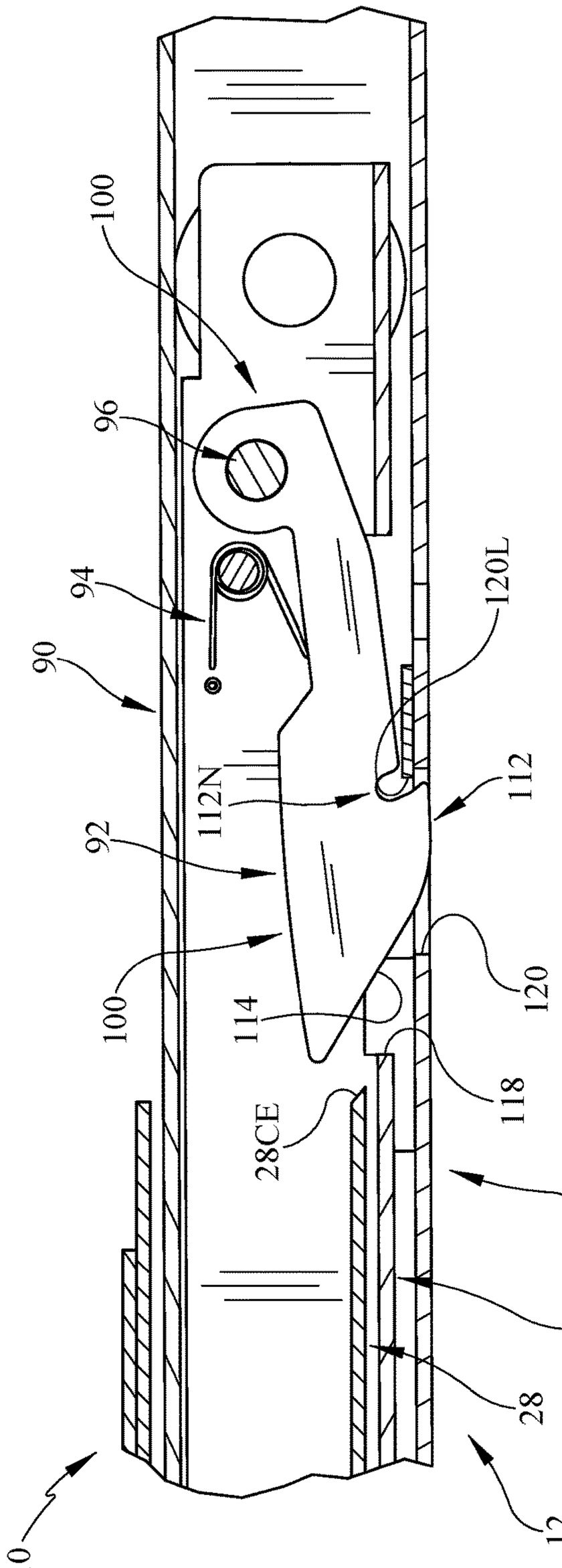
RIGHT-SIDE LOCKING LEVER (INTERMEDIATE-RELEASE POSITION)
64
72
88
82E
82
68N
68
70
66
THIRD DOWNWARD PIVOT FORCE
F3
62
62E

FIG. 19


100
96
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112N
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120L
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120
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28CE
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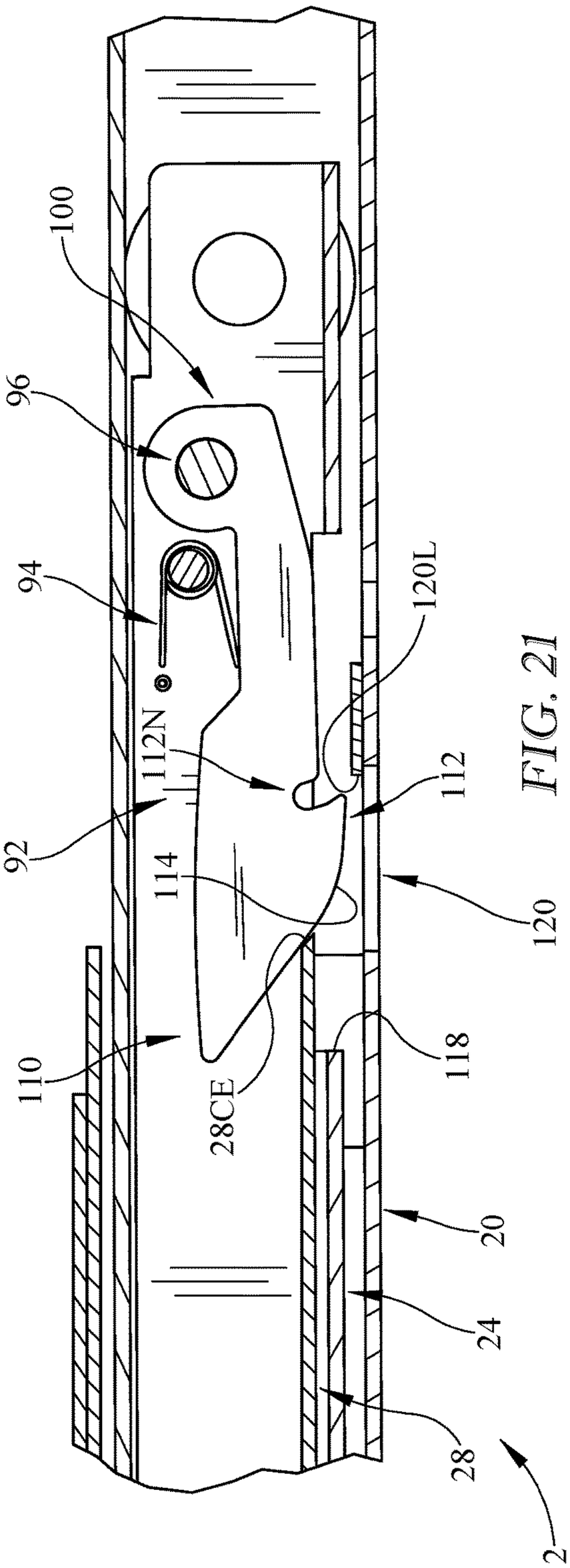
24
28
10
12
12

FIG. 20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92
112N
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120L
114
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118
28CE
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24
28
12

FIG. 21

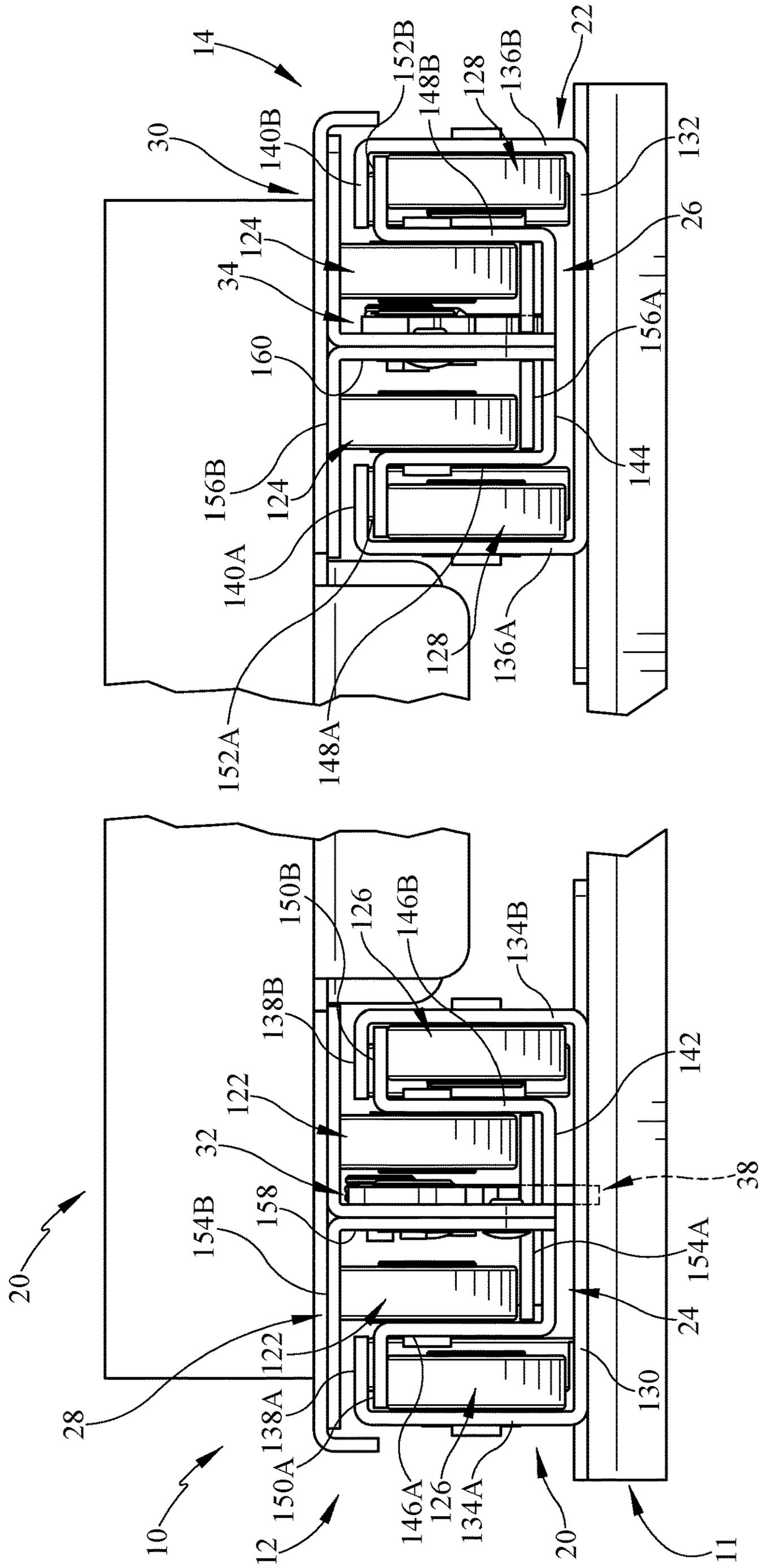
14
152B
148B
128
136B
22
30
140B
132
124
26
34
160
156A
156B
144
140A
136A
152A
148A
150B
126
146B
134B
138B
122
142
32
38
158
154B
154A
24
28
130
138A
150A
146A
134A
20
10
12
11

FIG. 22

TELESCOPING SLIDE SYSTEM WITH A TOOLLESS RELEASE FEATURE

PRIORITY CLAIM

This application claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Application Ser. No. 63/282,383 filed Nov. 23, 2021, which is expressly incorporated by reference herein.

BACKGROUND

The present invention relates to telescoping slide systems for moving equipment between a fully retracted position and an extended position, and particularly to a slide assembly having at least three slide members and lock mechanisms for locking the slide members in various retracted and extended positions. More particularly, the present invention relates to a telescoping slide assembly that contains mechanisms for controlling unlocking of the slide members during telescoping movement of the slide members between extended and retracted positions.

A conventional telescoping slide assembly typically includes a stationary slide member, a load-carrying slide member, and an intermediate slide member. The intermediate slide member is positioned and configured to move the load-carrying slide member toward and away from the stationary slide member. Typically, a pair of telescoping slide assemblies are positioned in side-by-side spaced-apart parallel relation so that either a load-carrying platform or one or more pieces of equipment can be carried on the two side-by-side load-carrying slide members. It is also common to use a pair of telescoping slide assemblies to support a cabinet drawer between a retracted position inside the cabinet and an extended position outside the cabinet.

The stationary slide member is typically mounted to a fixed frame to anchor the slide assembly. The frame could be a cabinet, a truck bed, or any other suitable platform. For example, it is known to use telescoping slide assemblies to slide heavy pieces of equipment into and out of a truck bed.

Various kinds of equipment or loads can be anchored to the movable load-carrying slide members so that such loads can be moved easily relative to the truck bed or the like during telescoping extension and retraction of the intermediate and load-carrying slide members in each slide assembly relative to the stationary slide members that are anchored to the truck bed. Typically, a telescoping slide assembly is extended and retracted manually by an operator and thus must be capable of moving heavy loads easily and quickly under the control of an operator during loading of equipment onto the truck and unloading of equipment from the truck.

Locking interconnections between each of the three slide members may be provided to prevent extension or retraction of the slide members relative to each other. This allows a drawer or equipment rack mounted on a pair of telescoping slide assemblies to be extended outward in the extending direction and locked to maintain a desired extended position.

Typically, as the telescoping slide assemblies extend to move the equipment or load from the retracted position, the slide members lock automatically in an extended position to maintain the telescoping slide system in the extended position. An operator initiates the extension process by actuating a release mechanism to allow the slide members to extend relative to one another. When the intermediate slide member reaches its fully extended position, the load-carrying slide member automatically locks to the intermediate slide member and thereby stops the slide assembly in the extended position.

In some instances, the equipment may need to be separated from the fixed frame to be moved to another location. In many applications, an operator manually detaches the equipment using tools to remove fasteners coupling the equipment to the load-carrying slide members. In other applications, the load-carrying slide members may be coupled to the intermediate slide members to prevent the load-carrying slide member from moving out of a channel formed in the intermediate slide members. Similarly, an operator has to manually detach the load-carrying slide members from the intermediate slide members using tools to remove fasteners coupling the load-carrying slide members to the intermediate slide members. The manual removal of the fasteners makes separating the equipment from the fixed frame difficult.

SUMMARY

A telescoping slide system in accordance with the present disclosure includes a left-side telescoping slide assembly and a right-telescoping slide assembly. Both telescoping slide assemblies include interconnected slide members moveable to extend and retract among a RETRACTED-STORAGE stage, an EXTENDED-SERVICE stage, a PRE-REMOVAL stage, and a REMOVAL stage.

In illustrative embodiments, the telescoping slide system further includes a toolless release feature coupled to the left-side and the right-side telescoping slide assemblies for controlling movement of the telescoping slide assemblies between the RETRACTED-STORAGE, EXTENDED-SERVICE, PRE-REMOVAL, and REMOVAL stages. The toolless release feature enables a technician to remove a piece of equipment mounted to load-carrying slide members of each telescoping slide assembly from a storage rack without the use of any tools

In illustrative embodiments, both the left-side and the right-side telescoping slide assemblies include a stationary slide member, an intermediate slide member, and a load-carrying slide member. The intermediate slide member moves relative to the stationary slide member in a channel formed in the stationary slide member. The load-carrying slide member that moves relative to the stationary slide member and the intermediate slide member in a channel formed in the intermediate slide member.

In illustrative embodiments, the toolless release feature includes a left-side locking lever and a right-side locking lever. The left-side locking lever is pivotably coupled to the load-carrying slide member of the left-side telescoping assembly, while the right-side locking lever pivotably is coupled to the load-carrying slide member of the right-side telescoping slide assembly. The left-side locking lever and the right-side locking lever are each configured to pivot selectively relative to the corresponding load-carrying slide member to lock or release the load-carrying members between the RETRACTED-STORAGE stage, the EXTENDED-SERVICE stage, PRE-REMOVAL stage, and the REMOVAL stage.

Additional features of the present disclosure will become apparent to those skilled in the art in response to consideration of illustrative embodiments exemplifying the best mode of carrying out the disclosure as presently perceived.

BRIEF DESCRIPTIONS OF THE DRAWINGS

The detailed description particularly refers to the accompanying figures in which:

FIG. **1** is a perspective view of a telescoping slide system in accordance with the present disclosure comprising left-side and right-side telescoping slide assemblies movable to extend and retract among a RETRACTED-STORAGE stage as shown in FIG. **6**, an EXTENDED-SERVICE stage as shown in FIG. **7**, a PRE-REMOVAL stage as shown in FIG. **8**, and a REMOVAL stage as shown in FIG. **9** and further showing a toolless release feature for controlling movement of the telescoping slide assemblies between the RETRACTED-STORAGE, EXTENDED-SERVICE, PRE-REMOVAL, and REMOVAL stages to enable a technician to remove a piece of equipment mounted to load-carrying slide members of each telescoping slide assembly from a storage rack without the use of any tools;

FIG. **1**A is an enlarged perspective view of the telescoping slide system of FIG. **1** showing the toolless release feature includes a left-side locking lever pivotably coupled to the load-carrying slide member of the left-side telescoping assembly and a right-side locking lever pivotably coupled to the load-carrying slide member of the right-side telescoping slide assembly, and showing how the left-side locking lever and the right-side locking lever are each configured to pivot selectively relative to the corresponding load-carrying slide member to lock or release the load-carrying members between the RETRACTED-STORAGE stage, the EXTENDED-SERVICE stage, PRE-REMOVAL stage, and the REMOVAL stage;

FIG. **2** is a perspective view of the telescoping slide system of FIG. **1** showing the telescoping slide system has moved from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage by changing the left-side locking lever of the toolless release feature from a STORAGE-ENGAGED position as shown in FIG. **6**L to a SERVICE-ENGAGED position as shown in FIG. **7**L so that the piece of equipment is moved out of the storage rack and the intermediate and load-carrying members of each telescoping slide assembly are blocked from movement relative to the stationary slide members coupled to the storage rack to allow the technician to safely access the piece of equipment;

FIG. **3** is a perspective view similar to FIG. **2** showing the telescoping slide system has moved from the EXTENDED-SERVICE stage to a PRE-REMOVAL stage in an attempt to begin removing the piece of equipment from the storage rack, and showing the telescoping slide system has moved from the EXTENDED-SERVICE stage to the PRE-REMOVAL stage by changing the left-side locking lever of the toolless release feature from the SERVICE-ENGAGED position to a PRE-REMOVAL-RELEASED position as shown in FIG. **8**L to allow the telescoping slide system to move toward the REMOVAL stage which causes the right-side locking lever of the toolless release feature to change from a SERVICE-UNRESTRICTED position as shown in FIG. **7**R to a PRE-REMOVAL-ENGAGED position as shown in FIG. **8**R to block immediate removal of the load-carrying members of each telescoping slide assembly from the intermediate and stationary slide members, thereby preventing any accidental removal of the equipment from the storage rack;

FIG. **4** is a perspective view similar to FIG. **3** showing the telescoping slide system has moved from the PRE-REMOVAL stage to a REMOVAL stage to finish removing the piece of equipment from the storage rack, and showing the telescoping slide system has moved from the PRE-REMOVAL stage to the REMOVAL stage by changing the right-side locking lever of the toolless release feature from the PRE-REMOVAL-ENGAGED position to the RELEASED position as shown in FIG. **9**R so that the load-carrying members of each telescoping slide assembly are removed from the intermediate and stationary slide members, thereby allowing the piece of equipment to be fully separated from the storage rack;

FIG. **5** is an exploded view of the telescoping slide system of FIG. **1** showing the left-side locking lever of the toolless release feature is configured to be coupled to the load-carrying slide member of the left-side telescoping slide assembly and the right-side locking lever of the toolless release feature is configured to be coupled to the load-carrying slide member of the right-side telescoping slide assembly, and showing the stationary and intermediate carriers include locking apertures that are configured to be engaged by the left and right-side locking levers at each of the corresponding stages;

FIG. **6** is a perspective view of the telescoping slide system of FIG. **1** showing the telescoping slide system in the RETRACTED-STORAGE stage with portions of the storage rack and the telescoping slide assemblies broken away to show the left-side locking lever of the toolless release feature in the STORAGE-ENGAGED position and the right-side locking lever of the toolless release feature in the STORAGE-UNRESTRICTED position;

FIG. **6**L is a detail view of FIG. **6** showing the left-side locking lever of the toolless release feature in the STORAGE-ENGAGED position in which a locker head formed on the left-side locking lever extends into a first set of locking apertures formed in the intermediate and stationary slide members on the left-side telescoping slide assembly, thereby locking the telescoping slide system in the RETRACTED-STORAGE stage;

FIG. **6**R is a detail view of FIG. **6** showing the right-side locking lever of the toolless release feature in the STORAGE-UNRESTRICTED position in which a locker head formed on the right-side locking lever abuts an inner surface of the stationary slide member and does not block the load-carrying and intermediate slide members of the right-telescoping slide assembly from moving relative to the stationary slide member so that when the left-side locking lever is released the telescoping slide system is free to move between the RETRACTED-STORAGE stage and the EXTENDED-SERVICE stage;

FIG. **7** is a perspective view similar to FIG. **6** showing the telescoping slide system in the EXTENDED-SERVICE stage with portions of the telescoping slide assemblies broken away to show the left-side locking lever of the toolless release feature in the SERVICE-ENGAGED position and the right-side locking lever of the toolless release feature in the SERVICE-UNRESTRICTED position;

FIG. **7**L is a detail view of FIG. **7** showing the left-side locking lever of the toolless release feature in the SERVICE-ENGAGED position in which the locker head of the left-side locking lever extends into a second set of locking apertures formed in the intermediate slide member of the left-side telescoping slide assembly, thereby locking the telescoping slide system in the EXTENDED-SERVICE stage;

FIG. **7**R is a detail view of FIG. **7** showing the right-side locking lever of the toolless release feature in the SERVICE-UNRESTRICTED position in which the locker head of the right-side locking lever remains free so that the right-side locking lever does not block the load-carrying and interme-

diate slide members of the right-side telescoping slide assembly from moving relative to the stationary slide member;

FIG. **8** is a perspective view similar to FIG. **7** showing the telescoping slide system in the PRE-REMOVAL stage with portions of the telescoping slide assemblies broken away to show the left-side locking lever of the toolless release feature in the PRE-REMOVAL-RELEASED position and the right-side locking lever of the toolless release feature in the PRE-REMOVAL-ENGAGED position;

FIG. **8**L is a detail view of FIG. **8** showing the left-side locking lever of the toolless release feature in the PRE-REMOVAL-RELEASED position in which the locker head of the left-side locking lever is spaced apart from the second set of locking apertures formed in the intermediate slide member of the left-side telescoping slide assembly, thereby allowing the telescoping slide system to be moved to the PRE-REMOVAL stage;

FIG. **8**R is a detail view of FIG. **8** showing the right-side locking lever of the toolless release feature in the PRE-REMOVAL-ENGAGED position in which the locker head of the right-side locking lever extends into a locking aperture formed in the intermediate slide member on the right-side telescoping slide assembly, thereby locking the telescoping slide system in the PRE-REMOVAL stage before the piece of equipment is fully removed from the storage rack to prevent any accidental removal of the equipment from the storage rack;

FIG. **9** is a perspective view similar to FIG. **9** showing the telescoping slide system in the REMOVAL stage in which the piece of equipment has been fully removed and is spaced apart from the storage rack, and showing both the left-side locking lever and the right-side locking lever of the toolless release feature are in the REMOVAL positions in the REMOVAL stage so that the load-carrying slide members are free to be removed from the respective telescoping slide assemblies;

FIG. **9**L is a detail view of FIG. **9** showing the left-side locking lever of the toolless release feature in the REMOVAL position in which the locker head of the left-side locking lever does not engage either of the intermediate or stationary slide members of the left-side telescoping slide assembly;

FIG. **9**R is a detail view of FIG. **9** showing the right-side locking lever of the toolless release feature in the REMOVAL position in which the locker head of the right-side locking lever does not engage either of the intermediate or stationary slide members of the right-side telescoping slide assembly;

FIG. **10** is a section view of the telescoping slide system in the RETRACTED-STORAGE stage showing the left-side locking lever of the toolless release feature includes an elongated release handle pivotably coupled to the load-carrying slide member of the left-side telescoping slide assembly and the locker head which has locking lugs that cooperate to lock the telescoping slide system in the RETRACTED-STORAGE stage, and further showing the handle is configured to be engaged with a first downward pivot force to pivot the left-side locking lever between the STORAGE-ENGAGED position and an INTERMEDIATE-RELEASED position so that the telescoping slide system may be moved from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage;

FIG. **10**A is a detail view of FIG. **10** showing the locking lugs formed on the locker head of the left-side locking lever extend into corresponding locking apertures included in the first set of locking apertures to block movement of the telescoping slide assembly when the telescoping slide assembly is in the RETRACTED-STORAGE stage;

FIG. **11** is a section view similar to FIG. **10** showing the first downward pivot force has been applied to the handle of the left-side locking lever to cause the left-side locking lever to pivot in a counterclockwise direction to the INTERMEDIATE-RELEASED position so that the load-carrying and intermediate slide members of each slide assembly are free to move to the left relative to the stationary slide member toward the EXTENDED-SERVICE stage;

FIG. **11**A is a detail view of FIG. **11** showing the locking lugs formed on the locker head of the left-side locking lever are spaced apart from the corresponding locking apertures included in the first set of locking apertures after the first downward pivot force has been applied to the left-side locking lever to allow the load-carrying and intermediate slide members of each slide assembly to move relative to the stationary slide member;

FIG. **12** is a section view similar to FIG. **11** showing one of the locking lugs formed on the locker head of the left-side locking lever of the toolless release feature is shaped to include a lifting ramp that is configured to block the left-side locking lever of the toolless release feature from engaging a locking aperture included in the second set of locking apertures formed in the intermediate slide member, thereby preventing establishment of a locked connection at a partly extended stage during movement of the telescoping slide assembly from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage;

FIG. **13** is a section view similar to FIG. **12** showing the left-side locking lever has moved to the SERVICE-ENGAGED position in which the locker head of the left-side locking lever of the toolless release feature extends into the second set of locking apertures formed in the intermediate slide member on the left-side telescoping slide assembly, thereby locking the telescoping slide system in the EXTENDED-SERVICE stage and preventing the load-carrying members of each slide assembly from moving relative to the intermediate slide members back to the RETRACTED-STORAGE stage and/or from being removed from the respective slide assemblies;

FIG. **14** is a section view similar to FIG. **13** showing the release handle of the left-side locking lever of the toolless release feature is configured to be engaged with a second downward pivot force to pivot the left-side locking lever of the toolless release feature between the SERVICE-ENGAGED position and the INTERMEDIATE-RELEASED position so that the telescoping slide assembly may be moved from the EXTENDED-SERVICE stage to either the RETRACTED-STORAGE stage to move the piece of equipment back into the storage rack or the PRE-REMOVAL stage to begin removing the piece of equipment from the storage rack;

FIG. **14**A is a detail view of FIG. **14** showing the locking lugs formed on the locker head of the left-side locking lever of the toolless release feature extend into corresponding locking apertures included in the second set of locking apertures formed in the intermediate slide member of the left-side slide assembly to block movement of the telescoping slide system when the telescoping slide system is in the EXTENDED-SERVICE stage;

FIG. **15** is a section view similar to FIG. **14** showing the second downward pivot force has been applied to the release handle of the left-side locking lever of the toolless release feature to cause the left-side locking lever to pivot in the counterclockwise direction to the INTERMEDIATE-RELEASED position so that the load-carrying slide members

of each slide assembly are free to move to the left relative to the corresponding intermediate slide members toward the PRE-REMOVAL stage;

FIG. **15**A is a detail view of FIG. **15** showing the locking lugs formed on the locker head of the left-side locking lever of the toolless release feature are spaced apart from the corresponding locking apertures included in the second set of locking apertures after the second downward pivot force has been applied to the left-side locking lever;

FIG. **16** is a section view of the telescoping slide assembly in the extended service storage stage showing the right-side locking lever of the toolless release feature in the SERVICE-UNRESTRICTED position, and further showing the right-side locking lever of the toolless release feature includes a release handle pivotably coupled to the load-carrying slide member of the right-side telescoping slide assembly and a locker head that has a hook configured to engage the intermediate slide member of the right-side telescoping slide assembly to lock the telescoping slide system in the PRE-REMOVAL stage;

FIG. **17** is a view similar to FIG. **16** showing the telescoping slide assembly has moved from the EXTENDED-SERVICE stage to the PRE-REMOVAL stage to cause the right-side locking lever of the toolless release feature to pivot in a clock-wise direction so that the hook formed on the locker head of the right-side telescoping slide assembly extends into a locking aperture formed in the intermediate slide member on the right-side telescoping slide assembly, thereby locking the telescoping slide system in the PRE-REMOVAL stage;

FIG. **18** is a view similar to FIG. **17** showing the release handle of the right-side locking lever of the toolless release feature is configured to be engaged with a third downward pivot force to pivot the right-side locking lever of the toolless release feature between the PRE-REMOVAL-ENGAGED position and an INTERMEDIATE-RELEASED position so that the telescoping slide system may be moved from the PRE-REMOVAL stage to the REMOVAL stage, and further showing the locker head of the right-side locking lever further includes a lift ramp that is configured to pivot the right-side locking lever out of the locking aperture formed in the intermediate slide member on the right-side telescoping slide assembly when the telescoping slide system is moved from the PRE-REMOVAL stage back to the EXTENDED-SERVICE stage;

FIG. **19** is a view similar to FIG. **18** showing the third downward pivot force has been applied to the right-side locking lever of the toolless release feature to cause the right-side locking lever to pivot in a counterclockwise direction to the INTERMEDIATE-RELEASED position so that the load-carrying slide members of each slide assembly are free to move to the left relative to the corresponding intermediate slide members toward the REMOVAL stage;

FIG. **20** is a section view of the telescoping slide system in the EXTENDED-SERVICE stage showing the telescoping slide system further includes an intermediate locking and unlocking mechanism coupled to the left-side telescoping slide assembly, and further showing the intermediate locking and unlocking mechanism includes a latch blade that is pivotably mounted on the intermediate slide member of the left-side telescoping slide assembly and arranged to extend through an aperture formed in the intermediate slide member to engage a lip formed in the stationary slide member of the left-side telescoping slide assembly to lock the intermediate slide member in a fully extended position relative to the stationary slide member as the telescoping slide system moves from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage;

FIG. **21** is a sectional view similar to FIG. **20** showing the mechanism of FIG. **20** in an UNLOCKED position in which a forwardly-facing camming edge formed on the load-carrying slide member of the left-side telescoping slide assembly engages a forwardly-facing ramping surface formed on the latch blade to lift and pivot the latch blade upwardly away from the stationary slide member of the left-side telescoping slide assembly to disengage the latch blade from the lip in the stationary slide member, thereby allowing the intermediate slide member of the left-side telescoping slide assembly to move with the load-carrying slide member of the left-side telescoping slide assembly to the right relative to the stationary slide member toward the RETRACTED-STORAGE stage; and

FIG. **22** is an end view of the left-side and right-side telescoping slide assemblies of the telescoping slide system showing each stationary slide member is mounted to the storage rack, each load-carrying slide member supports a portion of the equipment, and the each intermediate slide member is located therebetween, and further showing the load-carrying slide members are each supported for sliding movement in the corresponding intermediate slide member by rollers coupled to the intermediate slide member and the intermediate slide member is supported for sliding movement in the stationary slide member by rollers attached to the stationary slide member.

DETAILED DESCRIPTION

A telescoping slide system **10** illustrated in FIG. **1** includes a left-side telescoping slide assembly **12**, a right-side telescoping slide assembly **14**, and a toolless release feature **16**. The left-side and right-side telescoping slide assemblies **12**, **14** are movable to extend and retract among a RETRACTED-STORAGE stage as shown in FIG. **6**, an EXTENDED-SERVICE stage as shown in FIG. **7**, a PRE-REMOVAL stage as shown in FIG. **8**, and a REMOVAL stage as shown in FIG. **9**. The toolless release feature **16** controls movement of the telescoping slide assemblies **12**, **14** between the RETRACED-STORAGE, EXTENDED-SERVICE, PRE-REMOVAL, and REMOVAL stages to enable a technician to remove a piece of equipment **18** mounted to load-carrying slide members of each telescoping slide assembly **12**, **14** from a storage rack **11** without the use of any tools.

Each of the telescoping slide assemblies **12**, **14** includes interconnected slide members moveable to extend and retract among the RETRACTED-STORAGE stage, the EXTENDED-SERVICE stage, the PRE-REMOVAL stage, and the REMOVAL stage. The slide members of each assembly **12**, **14** include a stationary slide member **20**, **22**, an intermediate slide member **24**, **26**, and a load-carrying slide member **28**, **30** as shown in FIG. **5**. The intermediate slide member **24**, **26** is configured to move relative to the corresponding stationary slide member **20**, **22** in a channel **20**C, **22**C formed in the corresponding stationary slide member **20**, **22**. The load-carrying slide member **28**, **30** is configured to move relative to the corresponding stationary and intermediate slide members **20**, **22**, **24**, **26** in a channel **24**C, **26**C formed in the corresponding intermediate slide member **24**, **26**.

The toolless release feature **16** includes a left-side locking lever **32** and a right-side locking lever **34** as shown in FIG. **1**A. The left-side locking lever **32** is pivotably coupled to the load-carrying slide member **28** of the left-side telescoping

assembly **12**. The right-side locking lever **34** is pivotably coupled to the load-carrying slide member **30** of the right-side telescoping slide assembly **14**. The left-side locking lever **32** and the right-side locking lever **34** are each configured to pivot selectively relative to the corresponding load-carrying slide member **28**, **30** to lock or release the load-carrying members **28**, **30** between the RETRACTED-STORAGE stage, the EXTENDED-SERVICE stage, the PRE-REMOVAL stage, and the REMOVAL stage.

In the RETRACTED-STORAGE stage, the left-side locking lever **32** is in a STORAGE-ENGAGED position as suggested in FIG. **2**, while the right-side locking lever is unrestricted. In the STORAGE-ENGAGED position, the left-side locking lever **32** blocks movement of the intermediate and load-carrying slide members **24**, **26**, **28**, **30** of each telescoping slide assemblies **12**, **14** relative to the stationary slide members **20**, **22** coupled to the storage rack **11**. This prevents the piece of equipment **18** from moving out of a storage space **13** of the storage rack **11** when the piece of equipment **18** is not being accessed by the technician.

To access the piece of equipment **18**, the telescoping slide system **10** is moved from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage as suggested in FIG. **2**. The telescoping slide system **10** is moved from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage by changing the left-side locking lever **32** of the toolless release feature **16** from the STORAGE-ENGAGED position as shown in **6**L to a SERVICE-ENGAGED position as shown in FIG. **7**L. By moving the telescoping slide system **10** from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage, the piece of equipment **18** is moved out of the storage space **13** of the storage rack **11**.

In the EXTENDED-SERVICE stage, the left-side locking lever **32** of the toolless release feature **16** is in the SERVICE-ENGAGED position as shown in FIG. **2**. In the SERVICE-ENGAGED position, the left-side locking lever **32** blocks the intermediate and load-carrying members **24**, **26**, **28**, **30** of each telescoping slide assembly **12**, **14** from movement relative to the stationary slide members **20**, **22** to allow the technician to safely access the piece of equipment **18**.

To begin removing the piece of equipment **18** from the storage rack **11**, the telescoping slide system **10** is moved from the EXTENDED-SERVICE stage to the PRE-REMOVAL stage as shown in FIG. **3**. The telescoping slide system **10** is moved from the EXTENDED-SERVICE stage to the PRE-REMOVAL stage by changing the left-side locking lever **32** of the toolless release feature **16** from the SERVICE-ENGAGED position to a PRE-REMOVAL-RELEASED position as shown in FIG. **8**L.

In the PRE-REMOVAL-RELEASED position, the left-side locking lever **32** of the toolless release feature **16** is released from the intermediate slide member **24** of the left-side slide assembly **12** to allow the telescoping slide system **10** to move toward the REMOVAL stage. The movement of the telescoping slide system **10** toward the REMOVAL stage causes the right-side locking lever **34** of the toolless release feature to change from a SERVICE-UNRESTRICTED position as shown in FIG. **7**R to a PRE-REMOVAL-ENGAGED position as shown in FIG. **8**R.

In the REMOVAL-ENGAGED position, the right-side locking lever **34** blocks immediate removal of the load-carrying members **28**, **30** of each telescoping slide assembly **12**, **14** from the intermediate and stationary slide members **20**, **22**, **24**, **26**. By blocking immediate removal of the load-carrying members **28**, **30**, the right-side locking lever **34** prevents any accidental removal of the equipment **18** from the storage rack **11**.

To finish removing the piece of equipment **18** from the storage rack **11**, the telescoping slide system **10** is moved from the PRE-REMOVAL stage to the REMOVAL as shown in FIG. **4**. The telescoping slide system **10** is moved from the PRE-REMOVAL stage to the REMOVAL stage by changing the right-side locking lever **34** of the toolless release feature **16** from the PRE-REMOVAL-ENGAGED position to a RELEASED position as shown in FIG. **9**R. In this way, the load-carrying members **28**, **30** of each telescoping slide assembly **12**, **14** are removed from the intermediate and stationary slide members **20**, **22**, **24**, **26**, thereby allowing the piece of equipment **18** to be fully separated from the storage rack **11**.

In the illustrative embodiment, the left-side locking lever **32** of the toolless release feature **16** is configured to be coupled to the load-carrying slide member **28** of the left-side telescoping slide assembly **12** and the right-side locking lever **34** of the toolless release feature **16** is configured to be coupled to the load-carrying slide member **30** of the right-side telescoping slide assembly **14** as shown in FIG. **5**. The stationary and intermediate carriers **20**, **22**, **24**, **26** include locking apertures **74**, **76**, **78**, **80**, **82** that are configured to be engaged by the left and right-side locking levers **32**, **34** at each of the corresponding stages.

In FIG. **6**, the telescoping slide system **10** is in the RETRACTED-STORAGE stage. Portions of the storage rack **11** and the telescoping slide assemblies **12**, **14** are broken away to show the left-side locking lever **32** of the toolless release feature **16** in the STORAGE-ENGAGED position as shown in FIG. **6**L and the right-side locking lever **34** of the toolless release feature **16** in the STORAGE-UNRESTRICTED position as shown in FIG. **6**R.

When the left-side locking lever **32** is in the STORAGE-ENGAGED position, a locker head **38** formed on the left-side locking lever **32** extends into a first set of locking apertures **74**, **76** formed in the intermediate and stationary slide members **20**, **24** on the left-side telescoping slide assembly **12** as shown in FIGS. **6**L and **10**. The locker head **38** extends into the first set of locking apertures **74**, **76** to lock the telescoping slide system in the RETRACTED-STORAGE stage. This prevents the telescoping slide system **10** from moving relative to the storage rack **11** when the technician is not accessing the telescoping slide system **10**.

When the right-side locking lever **34** is in the STORAGE-UNRESTRICTED position, a locker head **64** formed on the right-side locking lever **34** abuts an inner surface **26**S of the intermediate slide member **26** as shown in FIG. **6**R. The right-side locking lever **34** does not block the load-carrying and intermediate slide members **30**, **26** of the right-telescoping slide assembly **14** from moving relative to the stationary slide member **22** so that when the left-side locking lever **32** is released, the telescoping slide system **10** is free to move between the RETRACTED-STORAGE stage and the EXTENDED-SERVICE stage.

In FIG. **7**, the telescoping slide system **10** in the EXTENDED-SERVICE stage. Portions of the telescoping slide assemblies **12**, **14** are broken away to show the left-side locking lever **32** of the toolless release feature **16** in the SERVICE-ENGAGED position as shown in FIG. **7**L and the right-side locking lever **34** of the toolless release feature **16** in the SERVICE-UNRESTRICTED position as shown in FIG. **7**R.

When the left-side locking lever **32** is in the SERVICE-ENGAGED position, the locker head **38** of the left-side locking lever **32** extends into a second set of locking apertures **78**, **80** formed in the intermediate slide member **24** of the left-side telescoping slide assembly **12** as shown in

FIGS. **7**L and **13**. The locker head **38** extends into the second set of locking apertures **78**, **80** to lock the telescoping slide system in the EXTENDED-SERVICE stage. This prevents the telescoping slide system **10** from moving relative to the storage rack **11** when the technician is accessing the telescoping slide system **10**.

When the right-side locking lever **34** is in the SERVICE-UNRESTRICTED position, the locker head **64** of the right-side locking lever **32** remains free as shown in FIGS. **7**R and **16**. The locker head **64** remains free so that the right-side locking lever **14** does not block the load-carrying and intermediate slide members **30**, **26** of the right-side telescoping slide assembly **14** from moving relative to the stationary slide member **22** when the left-side locking lever **32** is released.

In FIG. **8**, the telescoping slide system **10** is in the PRE-REMOVAL stage. Portions of the telescoping slide assemblies **12**, **14** are broken away to show the left-side locking lever **32** of the toolless release feature **16** in the PRE-REMOVAL-RELEASED position as shown in FIG. **8**L and the right-side locking lever **34** of the toolless release feature **16** in the PRE-REMOVAL-ENGAGED position as shown in FIG. **8**R.

When the left-side locking lever **32** is in the PRE-REMOVAL-RELEASED position, the locker head **38** of the left-side locking lever **32** is spaced apart from the second set of locking apertures **78**, **80** formed in the intermediate slide member **24** of the left-side telescoping slide assembly **12** as shown in FIGS. **8**L and **15**. This allows the telescoping slide system **10** to be moved to the PRE-REMOVAL stage.

When the right-side locking lever **34** is in the PRE-REMOVAL-ENGAGED position, the locker head **64** of the right-side locking lever **34** extends into a locking aperture **82** formed in the intermediate slide member **26** on the right-side telescoping slide assembly **14** as shown in FIGS. **8**R and **17**. The locker head **64** of the right-side locking lever **34** extends into the locking aperture **82** to lock the telescoping slide system **10** in the PRE-REMOVAL stage before the piece of equipment **18** is fully removed from the storage rack **11** to prevent any accidental removal of the equipment **18** from the storage rack **11**.

In FIG. **9**, the telescoping slide system **10** is in the REMOVAL stage in which the piece of equipment **18** has been fully removed and is spaced apart from the storage rack **11**. Both the left-side locking lever **32** and the right-side locking lever **34** of the toolless release feature **16** are in the REMOVAL positions as shown in FIGS. **9**L and **9**R in the REMOVAL stage. With the left-side locking lever **32** and the right-side locking lever **34** in the REMOVAL positions, the load-carrying slide members **28**, **30** are free to be removed from the respective telescoping slide assemblies **12**, **14**.

When the left-side locking lever **32** of the toolless release feature **16** is in the REMOVAL position, the locker head **38** of the left-side locking lever **32** does not engage either of the intermediate or stationary slide members **24**, **20** of the left-side telescoping slide assembly **12** as shown in FIG. **9**L. When the right-side locking lever **34** of the toolless release feature **16** is in the REMOVAL position, the locker head **64** of the right-side locking lever **34** does not engage either of the intermediate or stationary slide members **26**, **22** of the right-side telescoping slide assembly **14** as shown in FIG. **9**R.

The left-side locking lever **32** includes an elongated release handle **36** and the locker head **38** as shown in FIG. **10**. A rivet **40** pivotably couples the release handle **36** of the locking lever **32** to the load-carrying slide member **28**. The locking lever **32** is positioned so that a distal end portion **36**E of the handle **36** extends beyond the distal end **28**E of the load-carrying slide member **28**.

The locker head **38** is shaped to include locking lugs **42**, **44** as shown in FIGS. **10**-**15**A. The locking lugs **42**, **44** cooperate to lock the telescoping slide system **10** in the RETRACTED-STORAGE stage as shown in FIGS. **10** and **10**A and the EXTENDED-SERVICE stage as shown in FIGS. **13**, **14**, and **14**A.

In the illustrative embodiment, the left-side locking lever **32** is spring loaded so that the left-side locking lever **32** is biased toward the STORAGE-ENGAGED position in the RETRACTED-STORAGE stage and the SERVICE-ENGAGED position in the EXTENDED-SERVICE stage as shown in FIGS. **10** and **14**. A spring **48** is positioned between the load-carrying slide member **28** and the handle **36** of the locking lever **32** as shown in FIGS. **10** and **11**. The spring **48** biases the locking lever **32** toward the ENGAGED positions.

When the telescoping slide system **10** is in the RETRACTED-STORAGE stage as shown in FIG. **10**A, the first set of locking apertures **74**, **76** formed in the stationary slide member **20** are vertically aligned with locking apertures **84**, **86** formed in the intermediate and load-carrying slide members **24**, **28**. The locker head **38** of the locking lever **32** is urged downwardly by the action of the spring **48** to extend the locking lugs **42**, **44** into the locking apertures **74**, **76**, **84**, **86** to engage the stationary slide member **20** to lock the telescoping slide system **10** in the RETRACTED-STORAGE stage as shown in FIG. **10**A. The spring **48** urges the front-locking lug **42** into the locking aperture **74** and the back-locking lug **44** into the locking aperture **76** to establish the STORAGE-ENGAGED position.

The locking lugs **42**, **44** are situated in spaced-apart relation to form a notch **46** therebetween in the locker head **38** of the left-side locking lever **32** as shown in FIGS. **10**-**15**A. The notch **46** is defined by a forward vertical edge **52**, a rear angled edge **54**, and a horizontal edge **56** extending between the rear angled edge **54** and the forward vertical edge **52**. The angled edge **54** of the notch **46** meets a bottom edge **58** of the locker head **38** as shown in FIGS. **10**A and **11**A to form a forwardly extending rounded lip **60**. The lip **60** engages a complementary shoulder **74**S formed on the stationary slide member **20** when the locking lever **32** is in the STORAGE-ENGAGED position.

The back-locking lug **44** is shaped to define an inclined lifting ramp **50** as shown in FIGS. **10**A and **11**A. The lifting ramp **50** is provided on a forward facing edge of the locking lug **44**. Lifting ramp **50** fits into the locking aperture **76** formed in the stationary slide member **20** whenever the telescoping slide system **10** is moved to the RETRACTED-STORAGE stage as shown in FIG. **10**A. The lifting ramp **50** cooperates with vertical edge **52** to define a triangular shape of locking lug **44** that extends downwardly away from the locker head **38**.

To move the telescoping slide system **10** from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage, the handle **36** is configured to be engaged with a first downward pivot force F**1** as shown in FIGS. **10** and **11**. The first downward pivot force F**1** causes the left-side locking lever **32** to pivot between the STORAGE-ENGAGED position as shown in FIG. **10** and an INTERMEDIATE-RELEASED position as shown in FIG. **11**. In the INTERMEDIATE-RELEASED position, the locker head **38** of the left-side locking lever **32** is spaced apart from the locking apertures **74**, **76**.

The first downward pivot force F**1** is applied to the handle **36** of the left-side locking lever **32** to overcome the bias force applied by the spring **48** to the locking lever **32** and to

cause the left-side locking lever **32** to pivot in a counterclockwise direction to the INTERMEDIATE-RELEASED position as shown in FIG. **11**. By pivoting in the counterclockwise direction, the locking lugs **42**, **44** move out of and away from the locking apertures **74**, **76** to disengage the locking lever **32** from the stationary slide member **20**.

Once the locker head **38** of locking lever **32** has been disengaged from the locking apertures **74**, **76**, the intermediate and load-carrying slide members **24**, **26**, **28**, **30** are free to move together relative to the stationary slide members **20**, **22**. In the INTERMEDIATE-RELEASED position, the locking lugs **42**, **44** formed on the locker head **38** of the left-side locking lever **32** are spaced apart from the corresponding locking apertures **74**, **76** as shown in FIG. **11**A. This allows the intermediate and load-carrying slide members **24**, **26**, **28**, **30** of each slide assembly **12**, **14** to move to the left relative to the stationary slide members **20**, **22** toward the EXTENDED-SERVICE stage to extend the telescoping slide system **10**.

In FIG. **12**, the telescoping slide system **10** is moving to the left, as suggested by the arrow A, toward the EXTENDED-SERVICE stage to extend the telescoping slide system **10**. This moves the locker head **38** of the left-side locking lever **32** toward the second set of locking apertures **78**, **80** formed in the intermediate slide member **24**.

The lifting ramp **50** on the locker head **38** of the left-side locking lever **32** is configured to block the left-side locking lever **32** of the toolless release feature **16** from engaging any other holes formed in the intermediate slide member **24** as the telescoping slide system **10** moves toward the EXTENDED-SERVICE stage. For example, lifting ramp **50** is configured to block the left-side locking lever **32** of the toolless release feature **16** from engaging the locking aperture **78** the included in the second set of locking apertures **78**, **80** as the telescoping slide system **10** moves toward the EXTENDED-SERVICE stage. The lifting ramp **50** thereby prevents establishment of a locked connection at a partly extended stage during movement of the telescoping slide assembly from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage.

In FIG. **13**, the left-side locking lever **32** has moved to the SERVICE-ENGAGED position. In the SERVICE-ENGAGED position, the locker head **38** of the left-side locking lever **32** of the toolless release feature **16** extends into the second set of locking apertures **78**, **80** formed in the intermediate slide member **24** on the left-side telescoping slide assembly **12**. The locking lugs **42**, **44** extend into the respective locking apertures **78**, **80**, thereby locking the telescoping slide system **10** in the EXTENDED-SERVICE stage. With the locking lugs **42**, **44** engaged with the intermediate slide member **24** in the respective locking apertures **78**, **80**, the load-carrying members **28**, **30** of each slide assembly **12**, **14** is prevented from moving relative to the intermediate slide members **24**, **26** back to the RETRACTED-STORAGE stage and/or from being removed from the respective slide assemblies **12**, **14**.

From the EXTENDED-SERVICE stage, the telescoping slide system **10** may be moved back to the RETRACTED-STORAGE stage to move the piece of equipment **20** back into the storage rack. Alternatively, the telescoping slide system **10** may be moved to the PRE-REMOVAL stage from the EXTENDED-SERVICE stage to begin removing the piece of equipment **20** from the storage rack **11**.

To move the telescoping slide system **10** from the EXTENDED-SERVICE stage to one of the RETRACTED-STORAGE stage or the PRE-REMOVAL stage, the handle **36** of the left-side locking lever **32** is configured to be engaged with a second downward pivot force F**2** as shown in FIGS. **14** and **15**. The second downward pivot force F**2** is applied to the handle **36** of the left-side locking lever **32** to overcome the bias force applied by the spring **48** to the locking lever **32** while the left-side and right-side telescoping slide assemblies are in the EXTENDED-SERVICE stage. The second downward pivot force F**2** causes the left-side locking lever **32** to pivot between the SERVICE-ENGAGED position as shown in FIG. **14** and the INTERMEDIATE-RELEASED position as shown in FIG. **15**. In the INTERMEDIATE-RELEASED position, the locker head **38** of the left-side locking lever **32** is spaced apart from the locking apertures **78**, **80**.

With the left-side locking lever **32** in the INTERMEDIATE-RELEASED position, the intermediate and load-carrying slide members **24**, **26**, **28**, **30** may be moved to the right back toward the RETRACTED-STORAGE stage. Alternatively, the load-carrying slide members **28**, **30** may be moved to the left toward the PRE-REMOVAL stage once the left-side locking lever **32** is in the INTERMEDIATE-RELEASED position.

When the telescoping slide system **10** is in the EXTENDED-SERVICE stage as shown in FIG. **14**A, the second set of locking apertures **78**, **80** formed in the intermediate slide member **24** are vertically aligned with the locking aperture **86** formed in the load-carrying slide member **28**. The locker head **38** of the locking lever **32** is urged downwardly by the action of the spring **48** to extend the locking lugs **42**, **44** into the locking apertures **78**, **80**, **86** to engage the intermediate slide member **24** to lock the telescoping slide system **10** in the EXTENDED-SERVICE stage as shown in FIG. **14**A. The spring **48** urges the front-locking lug **42** into the locking aperture **78** and the back-locking lug **44** into the locking aperture **80** to establish the SERVICE-ENGAGED position to block movement of the telescoping slide system **10** when the telescoping slide system is in the EXTENDED-SERVICE stage.

After the second downward pivot force F**2** has been applied to the release handle **36** of the left-side locking lever **32** of the toolless release feature **16** as shown in FIG. **15**, the left-side locking lever **32** is pivoted in the counterclockwise direction to the INTERMEDIATE-RELEASED position so that the locker head **38** is spaced apart from the locking apertures **78**, **80** of the intermediate slide member **24**. In the INTERMEDIATE-RELEASED position, the load-carrying slide members **28**, **30** of each slide assembly **12**, **14** are free to move to the left relative to the corresponding intermediate slide members **24**, **26** toward the PRE-REMOVAL stage.

The locking lugs **42**, **44** formed on the locker head **38** of the left-side locking lever **32** of the toolless release feature **16** are spaced apart from the corresponding locking apertures **78**, **80** included in the second set of locking apertures **78**, **80** as shown in FIG. **15**A. The locking lugs **42**, **44** are spaced apart from the corresponding locking apertures **78**, **80** after the second downward pivot force F**2** has been applied to the left-side locking lever **32** as shown in FIG. **15**A.

The right-side locking lever **34** includes a release handle **62** and the locker head **64** as shown in FIGS. **16-19**. A rivet **66** pivotably couples the release handle **62** of the locking lever **34** to the load-carrying slide member **30** of the right-side telescoping slide assembly **14**. Unlike the left-side locking lever **32** of the left-side telescoping slide assembly **12**, the right-side locking lever **34** is positioned so that a distal end portion **62**E of the handle **62** does not extend beyond the distal end **30**E of the load-carrying slide member

30. In this way, the release handle **62** of the right-side locking lever **34** is not likely to be accidently engaged by the technician trying to work on the piece of equipment **20** coupled to the slide system **10**. Rather, the technician must intentionally engage the release handle **62** of the right-side locking lever **34** to remove the piece of equipment **20** from the storage rack **11**.

The locker head **64** is shaped to include a hook **68** as shown in FIGS. **16-19**. The hook **68** is configured to engage the intermediate slide member **26** of the right-side telescoping slide assembly **14** to lock the telescoping slide system **10** in the PRE-REMOVAL stage.

In the illustrative embodiment, the right-side locking lever **34** is spring loaded so that the right-side locking lever **34** is biased toward the PRE-REMOVAL-ENGAGED position as shown in FIGS. **16** and **17**. A spring **70** is positioned between the load-carrying slide member **30** and the locker head **64** of the locking lever **24** as shown in FIGS. **16-19**. The spring **70** biases the locking lever **34** toward the PRE-REMOVAL-ENGAGED position.

In the EXTENDED-SERVICE stage, the right-side locking lever **34** is in the SERVICE-UNRESTRICTED position as shown in FIG. **16**. As the load-carrying slide members **28**, **30** of each slide assembly **12**, **14** move to the left relative to the corresponding intermediate slide members **24**, **26** toward the PRE-REMOVAL stage, the spring **70** urges the locker head **64** of the right-side locking lever **34** to the PRE-REMOVAL-ENGAGED position as shown in FIG. **17**.

As the load-carrying slide members **28**, **30** of each slide assembly **12**, **14** move toward the PRE-REMOVAL stage, the locking aperture **88** formed in the load-carrying slide member **30** aligns with the locking aperture **82** formed in the intermediate slide member **26** of the right-side telescoping slide assembly **14**. Upon alignment of the locking apertures **82**, **88** in the respective slide members **26**, **30**, the spring **70** causes the right-side locking lever **34** of the toolless release feature **16** to pivot in a clock-wise direction to the PRE-REMOVAL-ENGAGED position. In the PRE-REMOVAL-ENGAGED position, the hook **68** extends into the locking apertures **82**, **88** and engages the intermediate slide member **26** in the locking aperture **82** as shown in FIG. **17**, thereby locking the telescoping slide system **10** in the PRE-REMOVAL stage.

To move the telescoping slide system **10** from the PRE-REMOVAL stage to the REMOVAL stage, the handle **62** of the right-side locking lever **34** is configured to be engaged with a third downward pivot force F**3** as shown in FIGS. **18** and **19**. The third downward pivot force F**3** is applied to the handle **62** of the right-side locking lever **34** to overcome the bias force applied by the spring **70** to the locking lever **34** while the left-side and right-side telescoping slide assemblies are in the PRE-REMOVAL stage. The third downward pivot force F**3** causes the right-side locking lever **34** to pivot between the PRE-REMOVAL-ENGAGED position as shown in FIG. **18** and an INTERMEDIATE-UNRESTRICTED position as shown in FIG. **19**.

Once the third downward pivot force F**3** has been applied to the right-side locking lever **34** of the toolless release feature **16**, the right-side locking lever **34** pivots in a counterclockwise direction to the INTERMEDIATE-UNRESTRICTED position. In the INTERMEDIATE-UNRESTRICTED position, the locker head **64** of the right-side locking lever **34** is spaced apart from the locking aperture **82** so that the telescoping slide system **10** may be moved from the PRE-REMOVAL stage to the REMOVAL stage to separate the piece of equipment **20** from the storage rack **11**. The load-carrying slide members **28**, **30** of each slide assembly **12**, **14** are free to move to the left relative to the corresponding intermediate slide members **24**, **26** toward the REMOVAL stage as shown in FIG. **19**.

By having to engage the release handle **62** of the right-side locking lever **34** with the third downward pivot force F**3**, the toolless locking feature **16** prevents accidental removal of the load-carrying slide members **28**, **30** from the corresponding slide assemblies **12**, **14**. Rather, the technician must intentionally engage the release handle **62** of the right-side locking lever **34** to finish removing the piece of equipment **20** from the storage rack **11**.

If the release handle **36** of the left-side locking lever **32** was accidently engaged with the second downward pivot force F**2**, the load-carrying slide members **28**, **30** may moved to the right relative to the intermediate slide members **24**, **26** from the PRE-REMOVAL stage back to the EXTENDED-SERVICE stage. The telescoping slide system **10** may be moved from the PRE-REMOVAL stage back to the EXTENDED-SERVICE stage without engaging the toolless release feature **16**.

In the illustrative embodiment, the locker head **64** of the right-side locking lever **34** further includes a lift ramp **72** as shown in FIG. **18**. The lift ramp **72** is configured to pivot the locker head **64** of the right-side locking lever **34** out of the locking aperture **86** formed in the intermediate slide member **26** on the right-side telescoping slide assembly **14** when the telescoping slide system **10** is moved from the PRE-REMOVAL stage back to the EXTENDED-SERVICE stage. The lift ramp **72** allows the telescoping slide system **10** to be moved back to the EXTENDED-SERVICE stage if the left-side locking lever **32** was accidently engaged. Alternatively, the lift ramp **72** also provides for easy return of the piece of equipment **20** back to the storage rack **11**. As the load-carrying slide members **28**, **30** is re-inserted into the corresponding channels **24**C, **26**C on the intermediate slide members **24**, **26**, the lift-ramp **72** pivots the right-side locking lever **34** so that the load-carrying slide members **28**, **30** do not get stuck in the PRE-REMOVAL stage.

As the load-carrying slide members **28**, **30** move to the right relative to the intermediate slide members **24**, **26**, the lift-ramp **72** engages an edge **82**E of the locking aperture **82**. The lift-ram **72** acts as a camming edge to lift and pivot the locker head **64** of the right-side locking lever **34** upwardly away from the intermediate slide member **26** of the right-side telescoping slide assembly **14** to disengage the hook **68** of the locker head **64** from the intermediate slide member **26**.

In the illustrative embodiment, the telescoping slide system **10** further includes an intermediate locking and unlocking mechanism **90** as shown in FIGS. **20** and **21**. The intermediate locking and unlocking mechanism **90** is coupled to the intermediate slide member **24** of the left-side telescoping slide assembly **12**. The intermediate locking and unlocking mechanism **90** is configured to lock the intermediate slide members **24**, **26** in a fully extended position relative to the stationary slide members **28**, **30**.

The intermediate locking and unlocking mechanism **90** includes a latch blade **92** and a biasing spring **94** as shown in FIGS. **20** and **21**. The latch blade **92** has a rearward end **100** pivotably mounted on the intermediate slide member **24** of the left-side telescoping slide assembly **12** with a rivet **96** and a forward end **110** arranged to extend through an aperture **118** formed in the intermediate slide member **24** and into an aperture **120** in the stationary slide member **20**. The forward end **110** extends through the apertures **118**, **120** and engages a lip **120**L formed in the stationary slide member **20** of the left-side telescoping slide assembly **12**.

The forward end **118** engages the lip **120**L to lock the intermediate slide member **24** in a fully extended position relative to the stationary slide member **20** as the telescoping slide system **10** moves from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage. The biasing spring **94** is positioned between the intermediate slide member **24** and the intermediate locking and unlocking mechanism **90** to urge the latch blade **92** downwardly into engagement with the lip **120**L.

The intermediate locking and unlocking mechanism **90** is configured to change between a LOCKED position as shown in FIG. **20** and an UNLOCKED position as shown in FIG. **21**. In the LOCKED position, the forward end **110** extends through the apertures **118**, **120** to engage the lip **120**L formed in the stationary slide member **20**. The forward end **118** engages the lip **120**L to lock the intermediate slide member **24**. In the UNLOCKED position, a forwardly-facing camming edge **28**CE formed on the load-carrying slide member **28** of the left-side telescoping slide assembly **12** engages a forwardly-facing ramping surface **114** formed on the latch blade **92** to lift and pivot the latch blade **92** upwardly away from the stationary slide member **20** of the left-side telescoping slide assembly **12**.

In the illustrative embodiment, the forward end **110** is shaped to include a hook **112** as shown in FIGS. **20** and **21**. The hook **112** forms a notch **112**N in the forward end **100** of the latch blade **92**. The notch **112**N engages the lip **120**L formed in the stationary slide member **20**.

The engagement of the forwardly-facing camming edge **28**CE with the forwardly-facing ramping surface **114** disengages the notch **112** of the latch blade **92** from the lip **120**L in the stationary slide member **20** as shown in FIG. **21**. The disengagement of the notch **112** from the lip **120**L allows the intermediate slide member **24** of the left-side telescoping slide assembly **12** to move with the load-carrying slide member **28** of the left-side telescoping slide assembly **12** to the right relative to the stationary slide member **20** toward the RETRACTED-STORAGE stage.

In illustrative embodiment, each stationary slide member **20**, **22** of the left-side and right-side telescoping slide assemblies **12**, **14** is mounted to the storage rack **11** as shown in FIG. **22**. Each load-carrying slide member **28**, **30** of the left-side and right-side telescoping slide assemblies **12**, **14** supports a portion of the equipment **20**. Each intermediate slide member **24**, **26** of the left-side and right-side telescoping slide assemblies **12**, **14** is nested between the stationary and load-carrying slide members **20**, **22**, **28**, **30**.

The load-carrying slide members **28**, **30** are each supported for sliding movement in the corresponding intermediate slide member **24**, **26** by rollers **122**, **124** as shown in FIG. **22**. The rollers **122**, **124** are coupled to the corresponding intermediate slide member **24**, **26**.

The intermediate slide members **24**, **26** are each supported for sliding movement in the corresponding stationary slide members **20**, **22** by rollers **126**, **128** as shown in FIG. **22**. The rollers **126**, **128** are attached to the corresponding stationary slide member **20**, **22**.

In the illustrative embodiment, each stationary slide member **20**, **22** includes a bottom portion **130**, **132** positioned between two spaced-apart vertical side walls **134**A, **134**B, **136**A, **136**B as shown in FIG. **22**. The bottom portion **130**, **132** is arranged to mount on a fixed platform of the storage rack **11** or another suitable mounting surface. Horizontal flanges **138**A, **138**B, **140**A, **140**B extend inwardly from the corresponding vertical side walls **134**A, **134**B, **136**A, **136**B to overlie the rollers **126**, **128** as shown in FIG. **22**.

In the illustrative embodiment, each intermediate slide member **24**, **26** includes a bottom portion **142**, **144** positioned between two spaced-apart vertical side walls **146**A, **146**B, **148**A, **148**B as shown in FIG. **22**. Horizontal flanges **150**A, **150**B, **152**A, **152**B extend outwardly from the corresponding vertical side walls **146**A, **146**B, **148**A, **148**B. The horizontal flanges **150**A, **150**B, **152**A, **152**B of the corresponding intermediate slide members **24**, **26** are arranged to lie underneath the pair of horizontal flanges **138**A, **138**B, **140**A, **140**B of the corresponding stationary slide member **20**, **22**. The horizontal flanges **150**A, **150**B, **152**A, **152**B are supported by rollers **126**, **128** mounted on the vertical side walls **134**A, **134**B, **136**A, **136**B of the corresponding stationary slide member **20**, **22**.

In the illustrative embodiment, each load-carrying slide member **28**, **30** includes a pair of horizontal load-supporting flanges **154**A, **154**B, **156**A, **156**B and central vertical walls **158**, **160** as shown in FIG. **22**. The horizontal load-supporting flanges **154**A, **154**B, **156**A, **156**B extend outwardly in opposite directions from an upper end of the corresponding central vertical walls **158**, **160**. The piece of equipment **20** to be carried by telescoping slide system **10** is mounted on the load-supporting flanges **154**A, **156**A of the corresponding load-carrying slide member **28**, **30**, while the bottom flanges **154**B, **156**B lie in spaced-apart parallel relation to the upper flanges **154**A, **156**A. The bottom flanges **154**B, **156**B extend outwardly in opposite directions from a lower end of the central vertical walls **158**, **160**. The horizontal load supporting flanges **154**A, **156**A are supported by the rollers **122**, **124** mounted on the vertical side walls **134**A, **134**B, **136**A, **136**B of the corresponding intermediate slide member **24**, **26**.

In the illustrative embodiment, the left-side locking lever **32** is coupled to the vertical side walls **158** of the load-carrying slide member **28** of the left-side telescoping slide assembly **12** as shown in FIG. **22**. In the illustrative embodiment, the right-side locking lever **34** is coupled to the vertical side walls **160** of the load-carrying slide member **30** of the right-side telescoping slide assembly **14** as shown in FIG. **22**.

A method of extending and retracting the left-side and right-side telescoping slide assemblies **12**, **14** among the RETRACTED-STORAGE stage as shown in FIG. **6**, the EXTENDED-SERVICE stage as shown in FIG. **7**, the PRE-REMOVAL stage as shown in FIG. **8**, and the REMOVAL stage as shown in FIG. **9** may include several steps. To move the left-side and right-side telescoping slide assemblies **12**, **14** from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage, the first downward pivot force F**1** is applied to the handle **36** of the left-side locking lever **32**. The first downward pivot force F**1** is applied to the handle **36** of the left-side locking lever **32** to overcome the bias force applied by the spring **48** to the locking lever **32** while the left-side and right-side telescoping slide assemblies are in the RETRACTED-STORAGE stage. This causes the left-side locking lever **32** to pivot between the STORAGE-ENGAGED position as shown in FIG. **10** and an INTERMEDIATE-RELEASED position as shown in FIG. **11**.

With the first downward pivot force F**1** applied, i.e. with the left-side locking lever **32** in the INTERMEDIATE-RELEASED position, the left intermediate and load-carrying slide members **24**, **28** and the right intermediate and load-carrying slide members **26**, **30** are moved relative to the left and right stationary slide members **20**, **22** in a first direction from the RETRACTED-STORAGE stage to the EXTENDED-SERVICE stage. Once the left intermediate

and load-carrying slide members **24**, **28** and the right intermediate and load-carrying slide members **26**, **30** being to move, the left-side locking lever **32** may be released. As the left-side and right-side telescoping slide assemblies **12**, **14** reach the EXTENDED-SERVICE stage, the left side locking lever **32** extends into the second set of locking apertures **78**, **80** formed in the intermediate slide member **24** of the left-side telescoping slide assembly **12** to lock the telescoping slide system in the EXTENDED-SERVICE stage.

To begin removing the piece of equipment **18** from the storage rack **11**, the second downward pivot force F**2** is applied to the handle **36** of the left-side locking lever **32**. The second downward pivot force F**2** is applied to the handle **36** of the left-side locking lever **32** to overcome the bias force applied by the spring **48** to the locking lever **32** while the left-side and right-side telescoping slide assemblies are in the EXTENDED-SERVICE stage. This causes the left-side locking lever **32** to pivot between the SERVICE-ENGAGED position as shown in FIG. **14** and the INTERMEDIATE-RELEASED position as shown in FIG. **15**.

With the second downward pivot force applied, i.e. with the left-side locking lever **32** in the INTERMEDIATE-RELEASED position, the left and right load-carrying slide members **28**, **30** are moved relative to the left stationary and intermediate slide members **20**, **24** and the right stationary and intermediate slide members **22**, **26** in the first direction from the EXTENDED-SERVICE stage to the PRE-REMOVAL stage. This causes the right-side locking lever **34** to lock the right-side telescoping slide assembly **14** so as to prevent accidental removal of the left and the right load-carrying slide members **28**, **30** from the corresponding telescoping slide assemblies **12**, **14**. Alternatively, the load-carrying slide members **28**, **30** may be moved to in a second direction opposite the first direction back toward the RETRACTED-STORAGE stage after the second downward pivot force F**2** is applied to the left-side locking lever **32**.

To fully remove the piece of equipment **18** from the storage rack **11**, the third downward pivot force F**3** is applied to the handle **62** of the right-side locking lever **34**. The third downward pivot force F**3** is applied to the handle **62** of the right-side locking lever **34** to overcome the bias force applied by the spring **70** to the locking lever **34** while the left-side and right-side telescoping slide assemblies are in the PRE-REMOVAL stage. This causes the right-side locking lever **34** to pivot between the PRE-REMOVAL-ENGAGED position as shown in FIG. **18** and an INTERMEDIATE-UNRESTRICTED position as shown in FIG. **19**.

With the third downward pivot force F**3** applied to the right-side locking lever **34**, the left and right load-carrying slide members **28**, **30** of left-side and right-side telescoping slide assemblies **14**, **16** are moved relative to the left and right stationary slide members **20**, **22** and the left and right intermediate slide members **24**, **26** in the first direction from the PRE-REMOVAL stage to the REMOVAL stage. The left and right load-carrying slide members **28**, **30** are moved in the first direction so that the left and right load-carrying slide members **28**, **30** are spaced apart from the left and right stationary slide members **20**, **22** and the left and right intermediate slide members **24**, **26**.

The following numbered clauses include embodiments that are contemplated and non-limiting:

Clause 1. A telescoping slide system comprising a left-side telescoping slide assembly including interconnected slide members moveable to extend and retract among a retracted-storage stage, an extended-service stage, a pre-removal stage, and a removal stage and a right-side telescoping slide assembly including interconnected, slide members moveable to extend and retract with the left-side telescoping slide assembly among the retracted-storage stage, the extended-service stage, the pre-removal stage, and the removal stage.

Clause 2. The telescoping slide system of clause 1, any other suitable clause, or combination of clauses, wherein the slide members of the a left-side telescoping slide assembly include a left stationary slide member, a left intermediate slide member that moves relative to the left stationary slide member in a channel formed in the left stationary slide member, and a left load-carrying slide member that moves relative to the left stationary slide member and the left intermediate slide member in a channel formed in the left intermediate slide member, and the slide members of the right-side telescoping slide assembly include a right stationary slide member, a right intermediate slide member that moves relative to the right stationary slide member in a channel formed in the right stationary slide member, and a right load-carrying slide member that moves relative to the right stationary slide member and the right intermediate slide member in a channel formed in the right intermediate slide member.

Clause 3. The telescoping slide system of clause 2, any other suitable clause, or combination of clauses, further comprising a toolless release feature.

Clause 4. The telescoping slide system of clause 3, any other suitable clause, or combination of clauses, wherein the toolless release feature comprises a left-side lever means for releasing the left load-carrying slide member and the left intermediate slide member for movement relative to the left stationary slide member to allow the left-side and right-side telescoping slide assemblies to change from the retracted-storage stage to the extended-service stage in response to a first downward pivot force, and for releasing the left load-carrying slide member for movement relative to the left intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change from the extended-service stage to one of the retracted-storage stage and the pre-removal stage in response to a second downward pivot force.

Clause 5. The telescoping slide system of clause 4, any other suitable clause, or combination of clauses, wherein the toolless release feature further comprises a right-side lever means for locking the right load-carrying slide member to the right intermediate carrier slide member in response to the left and right load-carrying slide members moving from the extended-service stage to the pre-removal stage to prevent the right and left load-carrying slide members from moving relative to the right and left intermediate slide members so as to prevent accidental removal of the left and the right load-carrying slide members from the corresponding telescoping slide assemblies, and for releasing the right load-carrying slide member for relative movement to the right intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage in response to a third downward pivot force so that the left and right load-carrying slide members are spaced apart from the left and right intermediate and stationary slide members.

Clause 6. The telescoping slide system of clause 5, any other suitable clause, or combination of clauses, wherein the left-side lever means includes a left-side locking lever pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage so that

the left load-carrying and intermediate slide members are blocked from movement relative to the left stationary slide member in the retracted-storage stage and (ii) a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage so that the left load-carrying slide member is blocked from movement relative to the left intermediate and stationary slide members in the extended-service stage.

Clause 7. The telescoping slide system of clause 6, any other suitable clause, or combination of clauses, wherein the left-side locking lever includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

Clause 8. The telescoping slide system of clause 7, any other suitable clause, or combination of clauses, wherein the left-side locking lever is positioned relative to the left load-carrying slide member so that a distal end portion of the release handle extends beyond a distal end of the left load-carrying slide member.

Clause 9. The telescoping slide system of clause 7, any other suitable clause, or combination of clauses, wherein the locker head of the left-side locking lever extends into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage, wherein the locker head of the left-side locking lever extends into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage, and wherein the second set of locking apertures are spaced apart from the first set of locking apertures along the left-side telescoping slide assembly.

Clause 10. The telescoping slide system of clause 9, any other suitable clause, or combination of clauses, wherein the locker head is shaped to include locking lugs that extend into the first set of locking apertures in the left stationary and intermediate slide members when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage and extend into the second set of locking apertures in the left intermediate slide member when the left-side and the right-side telescoping slide assemblies are in the extended-service stage.

Clause 11. The telescoping slide system of clause 6, any other suitable clause, or combination of clauses, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage so that the right load-carrying and intermediate slide members are free for movement relative to the right stationary slide member to allow the left-side and right-side telescoping slide assemblies change between the retracted-storage stage and the extended-service stage and (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage so that the right load-carrying slide member is partially blocked from movement relative to the right intermediate and stationary slide members in the pre-removal stage to prevent accidental removal of the equipment from the storage rack.

Clause 12. The telescoping slide system of clause 5, any other suitable clause, or combination of clauses, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage so that the right load-carrying and intermediate slide members are free for movement relative to the right stationary slide member to allow the left-side and right-side telescoping slide assemblies change between the retracted-storage stage and the extended-service stage and (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage so that the right load-carrying slide member is partially blocked from movement relative to the right intermediate and stationary slide members in the pre-removal stage to prevent accidental removal of the equipment from the storage rack.

Clause 13. The telescoping slide system of clause 12, any other suitable clause, or combination of clauses, wherein the right-side locking lever includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

Clause 14. The telescoping slide system of clause 13, any other suitable clause, or combination of clauses, wherein the right-side locking lever is positioned relative to the right load-carrying slide member so that a distal end of the right load-carrying slide member extends beyond a distal end portion of the release handle.

Clause 15. The telescoping slide system of clause 13, any other suitable clause, or combination of clauses, wherein the locker head of the right-side locking lever extends into a locking aperture formed in the right intermediate slide member of the right-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the pre-removal stage.

Clause 16. The telescoping slide system of clause 5, any other suitable clause, or combination of clauses, wherein the left-side lever means includes a left-side locking lever pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and (ii)

a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage.

Clause 17. The telescoping slide system of clause 16, any other suitable clause, or combination of clauses, wherein the left-side locking lever and the right-side locking lever each include a spring configured to apply a bias force to the corresponding locking lever and the first, second, and third downward pivot forces overcome the bias force applied by the spring of the corresponding locking lever.

Clause 18. The telescoping slide system of clause 17, any other suitable clause, or combination of clauses, wherein the first downward pivot force and the second downward pivot force are equal.

Clause 19. The telescoping slide system of clause 17, any other suitable clause, or combination of clauses, wherein the left-side locking lever further includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

Clause 20. The telescoping slide system of clause 19, any other suitable clause, or combination of clauses, wherein the right-side locking lever further includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

Clause 21. A telescoping slide system comprising a left-side telescoping slide assembly including interconnected slide members moveable to extend and retract among a retracted-storage stage, an extended-service stage, a pre-removal stage, and a removal stage, the slide members including a left stationary slide member, a left intermediate slide member that moves relative to the left stationary slide member in a channel formed in the left stationary slide member, and a left load-carrying slide member that moves relative to the left stationary slide member and the left intermediate slide member in a channel formed in the left intermediate slide member, a right-side telescoping slide assembly including interconnected, slide members moveable to extend and retract with the left-side telescoping slide assembly among the retracted-storage stage, the extended-service stage, the pre-removal stage, and the removal stage, the slide members including a right stationary slide member, a right intermediate slide member that moves relative to the right stationary slide member in a channel formed in the right stationary slide member, and a right load-carrying slide member that moves relative to the right stationary slide member and the right intermediate slide member in a channel formed in the right intermediate slide member, and a toolless release feature.

Clause 22. The telescoping slide system of clause 21, any other suitable clause, or combination of clauses, wherein the toolless release feature comprises a left-side locking lever configured to release the left load-carrying slide member and the left intermediate slide member for movement relative to the left stationary slide member to allow the left-side and right-side telescoping slide assemblies to change from the retracted-storage stage to the extended-service stage in response to a first downward pivot force and configured to release the left load-carrying slide member for movement relative to the left intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change from the extended-service stage to one of the retracted-storage stage and the pre-removal stage in response to a second downward pivot force, and a right-side locking lever configured to lock the right load-carrying slide member to the right intermediate carrier slide member in response to the left and right load-carrying slide members moving from the extended-service stage to the pre-removal stage to prevent the right and left load-carrying slide members from moving relative to the right and left intermediate slide members so as to prevent accidental removal of the left and the right load-carrying slide members from the corresponding telescoping slide assemblies and configured to release the right load-carrying slide member for relative movement to the right intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage in response to a third downward pivot force so that the left and right load-carrying slide members are spaced apart from the left and right intermediate and stationary slide members.

Clause 23. The telescoping slide system of clause 22, any other suitable clause, or combination of clauses, wherein the left-side locking lever is pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and (ii) a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage,

Clause 24. The telescoping slide system of clause 23, any other suitable clause, or combination of clauses, wherein the right-side locking lever is pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage.

Clause 25. The telescoping slide system of clause 24, any other suitable clause, or combination of clauses, wherein the left-side locking lever includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

Clause 26. The telescoping slide system of clause 25, any other suitable clause, or combination of clauses, wherein the locker head of the left-side locking lever extends into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage, wherein the locker head of the left-side locking lever extends into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage, and wherein the second set of locking apertures are spaced apart from the first set of locking apertures along the left-side telescoping slide assembly.

Clause 27. The telescoping slide system of clause 25, any other suitable clause, or combination of clauses, wherein the locker head is shaped to include locking lugs that extend into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage and extend into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage.

Clause 28. The telescoping slide system of clause 24, any other suitable clause, or combination of clauses, wherein the right-side locking lever includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

Clause 29. The telescoping slide system of clause 28, any other suitable clause, or combination of clauses, wherein the locker head of the right-side locking lever extends into a locking aperture formed in the right intermediate slide member of the right-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the pre-removal stage.

Clause 30. The telescoping slide system of clause 22, any other suitable clause, or combination of clauses, wherein the left-side locking lever and the right-side locking lever each include a spring configured to apply a bias force to the corresponding locking lever and the first, second, and third downward pivot forces overcome the bias force applied by the spring of the corresponding locking lever.

Clause 31. The telescoping slide system of clause 22, any other suitable clause, or combination of clauses, wherein the left-side locking lever is positioned relative to the left load-carrying slide member so that a distal end portion of the left-side locking lever extends beyond a distal end of the left load-carrying slide member.

Clause 32. The telescoping slide system of clause 22, any other suitable clause, or combination of clauses, wherein the right-side locking lever is positioned relative to the right load-carrying slide member so that a distal end of the right load-carrying slide member extends beyond a distal end portion of the right-side locking lever.

Clause 33. The telescoping slide system of clause 24, any other suitable clause, or combination of clauses, wherein the first downward pivot force and the second downward pivot force are equal.

Clause 34. A method comprising providing a telescoping slide system, the telescoping slide system comprising a left-side telescoping slide assembly including interconnected slide members moveable to extend and retract among a retracted-storage stage, an extended-service stage, a pre-removal stage, and a removal stage, the slide members including a left stationary slide member, a left intermediate slide member that moves relative to the left stationary slide member in a channel formed in the left stationary slide member, and a left load-carrying slide member that moves relative to the left stationary slide member and the left intermediate slide member in a channel formed in the left intermediate slide member, a right-side telescoping slide assembly including interconnected, slide members moveable to extend and retract with the left-side telescoping slide assembly among the retracted-storage stage, the extended-service stage, the pre-removal stage, and the removal stage, the slide members including a right stationary slide member, a right intermediate slide member that moves relative to the right stationary slide member in a channel formed in the right stationary slide member, and a right load-carrying slide member that moves relative to the right stationary slide member and the right intermediate slide member in a channel formed in the right intermediate slide member, and a toolless release feature comprising a left-side locking lever coupled to the left load-carrying slide member of the left-side telescoping slide assembly and a right-side locking lever coupled to the right load-carrying slide member of the right-side telescoping slide assembly.

Clause 35. The method of clause 34, any other suitable clause, or combination of clauses, further comprising applying a first downward pivot force to the left-side locking lever to cause the left-side locking lever to pivot relative to the left-side telescoping slide assembly when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage.

Clause 36. The method of clause 35, any other suitable clause, or combination of clauses, further comprising moving the left intermediate slide member, the left load-carrying slide member, the right intermediate slide member, and the right load-carrying slide member of left-side and right-side

telescoping slide assemblies relative to the left and right stationary slide members in a first direction from the retracted-storage stage to the extended-service stage after applying the first downward pivot force to the left-side locking lever.

Clause 37. The method of clause 36, any other suitable clause, or combination of clauses, further comprising applying a second downward pivot force to the left-side locking lever to cause the left-side locking lever to pivot relative to the left-side telescoping slide assembly once the left-side and right-side telescoping slide assemblies are in the extended-service stage.

Clause 38. The method of clause 37, any other suitable clause, or combination of clauses, further comprising moving the left load-carrying slide member and the right load-carrying slide member of left-side and right-side telescoping slide assemblies relative to the left and right stationary slide members and the left and right intermediate slide members in the first direction from the extended-service stage to the pre-removal stage after applying the second downward pivot force to the left-side locking lever to cause the right-side locking lever to lock the right-side telescoping slide assembly so as to prevent accidental removal of the left and the right load-carrying slide members from the corresponding telescoping slide assemblies.

Clause 39. The method of clause 38, any other suitable clause, or combination of clauses, further comprising applying a third downward pivot force to the right-side locking lever to cause the right-side locking lever to pivot relative to the right-side telescoping slide assembly once the left-side and right-side telescoping slide assemblies are in the pre-removal stage.

Clause 40. The method of clause 39, any other suitable clause, or combination of clauses, further comprising moving the left load-carrying slide member and the right load-carrying slide member of left-side and right-side telescoping slide assemblies relative to the left and right stationary slide members and the left and right intermediate slide members in the first direction from the pre-removal stage to the removal stage after applying the third downward pivot force to the right-side locking lever so that the left load-carrying slide member and the right load-carrying slide member are spaced apart from the left and right stationary slide members and the left and right intermediate slide members.

Clause 41. The method of clause 40, any other suitable clause, or combination of clauses, wherein the left-side locking lever includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

Clause 42. The method of clause 41, any other suitable clause, or combination of clauses, wherein the locker head of the left-side locking lever extends into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage, wherein the locker head of the left-side locking lever extends into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage, and wherein the second set of locking apertures are spaced apart from the first set of locking apertures along the left-side telescoping slide assembly.

Clause 43. The method of clause 42, any other suitable clause, or combination of clauses, wherein the locker head is shaped to include locking lugs that extend into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage and extend into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage.

Clause 44. The method of clause 40, any other suitable clause, or combination of clauses, wherein the right-side locking lever includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

Clause 45. The method of clause 44, any other suitable clause, or combination of clauses, wherein the locker head of the right-side locking lever extends into a locking aperture formed in the right intermediate slide member of the right-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the pre-removal stage.

Clause 49. The method of clause 40, any other suitable clause, or combination of clauses, wherein the left-side locking lever and the right-side locking lever each include a spring configured to apply a bias force to the corresponding locking lever and the first, second, and third downward pivot forces overcome the bias force applied by the spring of the corresponding locking lever.

Clause 50. The method of clause 49, any other suitable clause, or combination of clauses, wherein the first downward pivot force and the second downward pivot force are equal.

Clause 51. The method of clause 40, any other suitable clause, or combination of clauses, wherein the left-side locking lever is positioned relative to the left load-carrying slide member so that a distal end portion of the left-side locking lever extends beyond a distal end of the left load-carrying slide member.

Clause 52. The method of clause 40, any other suitable clause, or combination of clauses, wherein the right-side locking lever is positioned relative to the right load-carrying slide member so that a distal end of the right load-carrying slide member extends beyond a distal end portion of the right-side locking lever.

The invention claimed is:

1. A telescoping slide system comprising:

a left-side telescoping slide assembly including interconnected slide members moveable to extend and retract among a retracted-storage stage, an extended-service stage, a pre-removal stage, and a removal stage, the slide members including a left stationary slide member, a left intermediate slide member that moves relative to the left stationary slide member in a channel formed in the left stationary slide member, and a left load-carrying slide member that moves relative to the left stationary slide member and the left intermediate slide member in a channel formed in the left intermediate slide member,

a right-side telescoping slide assembly including interconnected slide members moveable to extend and retract with the left-side telescoping slide assembly among the retracted-storage stage, the extended-service stage, the pre-removal stage, and the removal stage, the slide members including a right stationary slide member, a right intermediate slide member that moves relative to the right stationary slide member in a channel formed in the right stationary slide member, and a right load-carrying slide member that moves relative to the right stationary slide member and the right intermediate slide member in a channel formed in the right intermediate slide member, and

a toolless release feature comprising:

a left-side lever means for releasing the left load-carrying slide member and the left intermediate slide member for movement relative to the left stationary slide member to allow the left-side and right-side telescoping slide assemblies to change from the retracted-storage stage to the extended-service stage in response to a first downward pivot force, and for releasing the left load-carrying slide member for movement relative to the left intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change from the extended-service stage to one of the retracted-storage stage and the pre-removal stage in response to a second downward pivot force, and

a right-side lever means for locking the right load-carrying slide member to the right intermediate carrier slide member in response to the left and right load-carrying slide members moving from the extended-service stage to the pre-removal stage to prevent the right and left load-carrying slide members from moving relative to the right and left intermediate slide members so as to prevent accidental removal of the left and the right load-carrying slide members from the corresponding telescoping slide assemblies, and for releasing the right load-carrying slide member for relative movement to the right intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage in response to a third downward pivot force so that the left and right load-carrying slide members are spaced apart from the left and right intermediate and stationary slide members.

2. The telescoping slide system of claim **1**, wherein the left-side lever means includes a left-side locking lever pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage so that the left load-carrying and intermediate slide members are blocked from movement relative to the left stationary slide member in the retracted-storage stage and (ii) a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage so that the left load-carrying slide member is blocked from movement relative to the left intermediate and stationary slide members in the extended-service stage.

3. The telescoping slide system of claim **2**, wherein the left-side locking lever includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

4. The telescoping slide system of claim **3**, wherein the left-side locking lever is positioned relative to the left load-carrying slide member so that a distal end portion of the release handle extends beyond a distal end of the left load-carrying slide member.

5. The telescoping slide system of claim **3**, wherein the locker head of the left-side locking lever extends into a first set of locking apertures formed in the left stationary and intermediate slide members of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage, wherein the locker head of the left-side locking lever extends into a second set of locking apertures formed in the left intermediate slide member of the left-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the extended-service stage, and wherein the second set of locking apertures are spaced apart from the first set of locking apertures along the left-side telescoping slide assembly.

6. The telescoping slide system of claim **5**, wherein the locker head is shaped to include locking lugs that extend into the first set of locking apertures in the left stationary and intermediate slide members when the left-side and the right-side telescoping slide assemblies are in the retracted-storage stage and extend into the second set of locking apertures in the left intermediate slide member when the left-side and the right-side telescoping slide assemblies are in the extended-service stage.

7. The telescoping slide system of claim **2**, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage so that the right load-carrying and intermediate slide members are free for movement relative to the right stationary slide member to allow the left-side and right-side telescoping slide assemblies change

between the retracted-storage stage and the extended-service stage and (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage so that the right load-carrying slide member is partially blocked from movement relative to the right intermediate and stationary slide members in the pre-removal stage to prevent accidental removal of the equipment from the storage rack.

8. The telescoping slide system of claim **1**, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage so that the right load-carrying and intermediate slide members are free for movement relative to the right stationary slide member to allow the left-side and right-side telescoping slide assemblies change between the retracted-storage stage and the extended-service stage and (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage so that the right load-carrying slide member is partially blocked from movement relative to the right intermediate and stationary slide members in the pre-removal stage to prevent accidental removal of the equipment from the storage rack.

9. The telescoping slide system of claim **8**, wherein the right-side locking lever includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

10. The telescoping slide system of claim **9**, wherein the right-side locking lever is positioned relative to the right load-carrying slide member so that a distal end of the right load-carrying slide member extends beyond a distal end portion of the release handle.

11. The telescoping slide system of claim **9**, wherein the locker head of the right-side locking lever extends into a locking aperture formed in the right intermediate slide member of the right-side telescoping slide assembly when the left-side and the right-side telescoping slide assemblies are in the pre-removal stage.

12. The telescoping slide system of claim **1**, wherein the left-side lever means includes a left-side locking lever pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and (ii) a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage, wherein the right-side lever means includes a right-side locking lever pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage and (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage, and wherein the left-side locking lever and the right-side locking lever each include a spring configured to apply a bias force to the corresponding locking lever and the first, second, and third downward pivot forces overcome the bias force applied by the spring of the corresponding locking lever.

13. The telescoping slide system of claim **12**, wherein the left-side locking lever further includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

14. The telescoping slide system of claim **13**, wherein the right-side locking lever further includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

15. A telescoping slide system comprising:

a left-side telescoping slide assembly including interconnected slide members moveable to extend and retract among a retracted-storage stage, an extended-service stage, a pre-removal stage, and a removal stage, the slide members including a left stationary slide member, a left intermediate slide member that moves relative to the left stationary slide member in a channel formed in the left stationary slide member, and a left load-carrying slide member that moves relative to the left stationary slide member and the left intermediate slide member in a channel formed in the left intermediate slide member,

a right-side telescoping slide assembly including interconnected slide members moveable to extend and retract with the left-side telescoping slide assembly among the retracted-storage stage, the extended-service stage, the pre-removal stage, and the removal stage, the slide members including a right stationary slide member, a right intermediate slide member that moves relative to the right stationary slide member in a channel formed in the right stationary slide member, and a right load-carrying slide member that moves relative to the right stationary slide member and the right intermediate slide member in a channel formed in the right intermediate slide member, and

a toolless release feature comprising

a left-side locking lever configured to release the left load-carrying slide member and the left intermediate slide member for movement relative to the left stationary slide member to allow the left-side and right-side telescoping slide assemblies to change from the retracted-storage stage to the extended-service stage in response to a first downward pivot force and configured to release the left load-carrying slide member for movement relative to the left intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change from the extended-service stage to one of the retracted-storage stage and the pre-removal stage in response to a second downward pivot force, and

a right-side locking lever configured to lock the right load-carrying slide member to the right intermediate carrier slide member in response to the left and right load-carrying slide members moving from the extended-service stage to the pre-removal stage to prevent the right and left load-carrying slide members from moving relative to the right and left intermediate slide members so as to prevent accidental removal of the left and the right load-carrying slide members from the corresponding telescoping slide assemblies and configured to release the right load-carrying slide member for relative movement to the right intermediate slide member to allow the left-side and right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage in response to a third downward pivot force so that the left and right load-carrying slide members are spaced apart from the left and right intermediate and stationary slide members.

16. The telescoping slide system of claim **15**, wherein the left-side locking lever is pivotably coupled to the left load-carrying slide member of the left-side telescoping slide assembly and the left-side locking lever is configured to change between (i) a storage-engaged position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and (ii) a service-engaged position when the left-side and right-side telescoping slide assemblies are in the extended-service stage, and wherein the right-side locking lever is pivotably coupled to the right load-carrying slide member of the right-side telescoping slide assembly and the right-side locking lever is configured to change between (i) a storage-unrestricted position when the left-side and right-side telescoping slide assemblies are in the retracted-storage stage and the extended-service stage (ii) a pre-removal-engaged position when the left-side and right-side telescoping slide assemblies are in the pre-removal stage.

17. The telescoping slide system of claim **16**, wherein the left-side locking lever includes a locker head configured to engage the left stationary slide member of the left-side telescoping slide assembly in the retracted-storage stage to prevent movement of the left load-carrying and intermediate slide members relative to the left stationary slide member and to engage the left intermediate slide member of the left-side telescoping slide assembly in the extended-service stage to prevent movement of the left load-carrying slide member relative to the left intermediate slide member and a release handle that extends form the locker head and configured to pivot the left-side locking lever and move the locker head away from one of the left stationary slide member and the left intermediate slide member when one of the first downward pivot force and the second downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the retracted-storage stage and the extended-service stage.

18. The telescoping slide system of claim **16**, wherein the right-side locking lever includes a locker head configured to engage the right intermediate slide member of the right-side telescoping slide assembly in the pre-removal stage to prevent movement of the right load-carrying slide member relative to the right intermediate slide member and a release handle that extends form the locker head and configured to pivot the right-side locking lever and move the locker head away from one of the right intermediate slide member when one of the third downward pivot force is applied to the release handle to allow the left-side and the right-side telescoping slide assemblies to change between the pre-removal stage and the removal stage.

19. The telescoping slide system of claim **15**, wherein the left-side locking lever is positioned relative to the left load-carrying slide member so that a distal end portion of the left-side locking lever extends beyond a distal end of the left load-carrying slide member.

20. The telescoping slide system of claim **15**, wherein the right-side locking lever is positioned relative to the right load-carrying slide member so that a distal end of the right load-carrying slide member extends beyond a distal end portion of the right-side locking lever.

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